AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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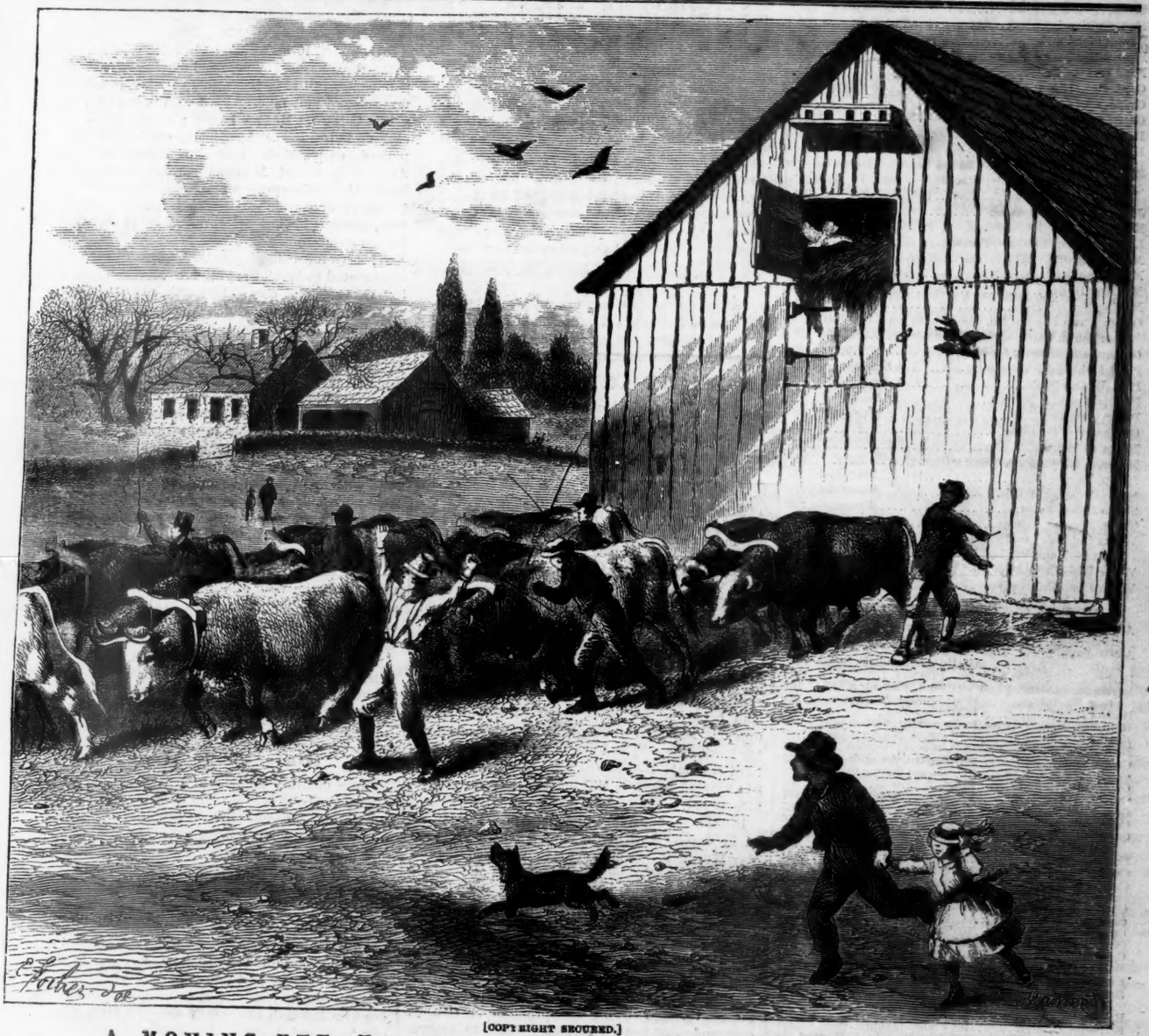

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A MOVING-BEE.—FROM A SKETCH BY R. E. ROBINSON.—*Drawn and Engraved for the American Agriculturist.*

Those who live in cities, where moving is a frequent if not an annual occurrence, look upon "moving time" with feelings of dismay. To them "moving" is no season of jollity, as it was not many years ago in the older parts of the country. If a farmer wished to place his barn or out-buildings in a better situation, and sometimes when he wished to change the location of his dwelling, he called together his neighbors on a given day for a "moving-bee." Like a "raising" or logging in new countries, it was understood that the "moving" would be a judicious mixture of work and frolic. The building to be moved was prepared beforehand by a carpenter, who would put runners under each of the side-sills. These runners were sticks of timber from which the bark and protruding knots had been removed, and rounded up at the ends. These were firmly connected by cross-pieces at each end, and securely fastened to the sills by pins and chains. If necessary to keep the building from "raeking," "stays" were placed inside. The assembling neighbors brought their oxen, which were hitched to the ends of the runners in two strings of from eight to twenty yoke each. All being ready, the procession started for its destination under the direction of the carpenter. While the moving was going on, the farmer's family were busy in the kitchen, and a feast crowned the work of the day. At present we have methods of moving buildings which, if more rapid and less laborious, are also less jolly.

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Salt and Plaster for Grass.—

"H. P. M.," Walworth, Wis., asks if it will pay to use salt and plaster for grass. The salt cost him 1½ cent per pound, and the plaster ¼ cent.—Use the plaster alone, 100 pounds per acre. Try the salt on a few rods, at the rate of one pound to the square rod. As a rule, it will not pay to use salt for manure at $30 per ton.

Calendar for May.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Cl., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	T	4 53	7 0	morn	4 56	6 56	morn	5 2	6 52	morn
2	F	4 55	7 1	0 19	4 57	6 57	0 13	5 1	6 53	0 6
3	S	4 52	7 2	1 2	4 56	6 58	0 56	5 0	6 54	0 49
4	S	4 50	7 3	1 38	4 54	6 59	1 33	4 58	6 55	1 28
5	M	4 49	7 4	2 10	4 53	7 0	2 6	4 57	6 56	2 1
6	T	4 48	7 5	2 35	4 52	7 1	2 32	4 56	6 57	2 29
7	W	4 47	7 6	2 55	4 51	7 2	2 56	4 55	6 58	2 54
8	T	4 46	7 7	3 20	4 50	7 3	3 19	4 54	6 59	3 18
9	F	4 45	7 8	3 39	4 49	7 4	3 39	4 53	7 0	3 39
10	S	4 44	7 9	4 0	4 48	7 5	4 1	4 52	7 1	4 3
11	S	4 43	7 10	4 22	4 47	7 6	4 25	4 51	7 2	4 28
12	M	4 42	7 11	4 48	4 46	7 7	4 52	4 50	7 3	4 56
13	T	4 41	7 12	rises	4 45	7 8	rises	4 49	7 4	rises
14	W	4 40	7 13	10 3	4 44	7 9	9 57	4 48	7 5	9 50
15	T	4 39	7 14	11 8	4 43	7 10	11 2	4 47	7 6	10 55
16	F	4 38	7 15	11 59	4 42	7 11	11 53	4 46	7 7	11 47
17	S	4 37	7 16	morn	4 42	7 11	morn	4 46	7 7	morn
18	S	4 36	7 17	0 44	4 41	7 12	0 39	4 45	7 8	0 34
19	M	4 36	7 18	1 19	4 40	7 13	1 15	4 44	7 9	1 11
20	T	4 35	7 19	1 47	4 40	7 14	1 45	4 44	7 10	1 42
21	W	4 34	7 20	2 14	4 9	7 15	2 13	4 43	7 10	2 11
22	T	4 33	7 21	2 34	4 38	7 16	2 33	4 43	7 11	2 28
23	F	4 32	7 22	3 2	4 37	7 17	3 4	4 42	7 12	3 5
24	S	4 32	7 23	3 28	4 37	7 18	3 31	4 42	7 13	3 34
25	S	4 31	7 24	sets	4 36	7 19	sets	4 41	7 14	sets
26	M	4 30	7 25	8 2	4 35	7 19	7 56	4 40	7 15	7 51
27	T	4 29	7 26	9 9	4 35	7 20	9 3	4 40	7 16	8 56
28	W	4 29	7 27	10 8	4 34	7 21	10 2	4 39	7 16	9 55
29	T	4 28	7 28	10 56	4 34	7 22	10 49	4 39	7 17	10 43
30	F	4 27	7 28	11 37	4 33	7 23	11 31	4 38	7 18	11 25
31	S	4 26	7 29	morn	4 32	7 23	morn	4 37	7 18	12 0

PHASES OF THE MOON.

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart	4	7 49 m.	7 37 m.	7 25 m.	7 13 m.	6 43 m.
Full M'n	12	6 34 m.	6 22 m.	6 10 m.	5 58 m.	5 28 m.
3d Quart.	19	6 16 m.	6 4 m.	5 52 m.	5 40 m.	5 10 m.
New M'n	26	4 36 m.	4 24 m.	4 12 m.	4 0 m.	3 30 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1873.

We are sometimes asked, "How early will it do to sow this or that crop?" A more important question with many of us is, "How *late* will it do to sow or plant?" On our own farm, we *aim* to get in our crops as early as possible. If the land is in good working order, we have never sustained any injury from too early sowing or planting. But it is a rare season when we are able to sow as early as we wish. As a rule, do what we will, it is not an easy matter to get in the seed at what we consider the best time. And we have to run more or less risk from late sowing and planting. In looking over our diary, we find that we commenced sowing barley in 1866 on the 12th of April, the land being, according to the record, "in prime order." But after this, owing to rainy weather, the work dragged; and we did not finish sowing until May 1st. We sowed field peas May 1st and 2d; planted potatoes May 5th to 11th; corn, May 17th to 22d.

In 1867.—Commenced plowing April 12th. Drilled in barley April 18th. Planted field potatoes May 17th–25th. Commenced to plant corn June 5th, and finished June 12th. Planted potatoes (in another field) June 16th—and had a good yield. Planted beans June 15th. Commenced cutting clover June 28th; wheat, July 16th.

In 1868.—Commenced plowing on corn-stubble for barley March 26th. Finished the field of 15 acres March 29th. Commenced sowing March 31st. This was a remarkably early season; but we did not get through sowing our spring grains (barley, oats, and peas) until April 25th. "May 3d, asparagus just coming through the ground." Commenced planting potatoes May 6th—finished June 4th. Set out tomato plants from pots May 23d. Commenced planting corn May 28th; finished June 2d. "First green-peas from garden, *Carter's First Crop*, June 19th." Planting field beans June 11th. Commenced cutting clover June 24th; wheat, July 16th.

1869.—April 15th, sowed three bushels Arnautka spring wheat from Department of Agriculture—a miserable crop. April 16th, plowing for and sowing oats. April 17th, four teams plowing in fall-fallow for barley. April 22d, drilled in the barley. This was quite as good a crop as that sown in March, 1868—over 50 bushels per acre. April 27th, harrowing winter wheat and sowing clover seed. May 1st, drilling in oats. May 10th, planting potatoes. May 12th, plowing for corn. May 13th, commenced drilling in corn, close up to the plows. Finished planting corn June 2d. June 22d, first green-peas from garden. July 5th, commenced cutting clover. July 19th, gathered the turnip seed. July 29th, commenced cutting wheat with two reaping-machines. July 31, cutting six-rowed barley. August 3d, thrashing wheat as it was drawn in from the field.

1870.—Commenced plowing April 14th, but the frost was not fairly out of the ground, and had to stop. May 18th, planting corn. May 20th, planting potatoes, and finished May 28th.

1871.—April 10th, drilled in ten acres of oats and peas—three bushels of peas and one bushel of oats per acre. April 12th, two teams plowing on fallow for mustard and rape. April 22d, weighed five grade Cotswold-Merino lambs, nine weeks old—average 49 lbs. each. April 25th, cultivating fall-plowed corn-stubble land for mangel-wurzel. April 25th, sowed Montana spring wheat, also Rocky Mountain spring wheat, received from Department of Agriculture (both a failure). April 26th, began plowing for corn. May 8th, ridging for mangels; finished sowing mangels May 12th. May 19th, a few mangel plants, the first sown, just commenced to break the ground. May 22d, planting potatoes and corn. May 29th, sowed plaster and ashes on the corn, which is just up. June 1st, commenced to hoe mangels; owing to the dry weather, they came up very irregularly. June 6th, planted corn on low land. June 9th, plowing fallow second time. July 3d, commenced cutting clover. July 15th, commenced cutting wheat with one machine; cut and bound 12 acres the first day. July 20th, plowing fallow third time, and sowing rape. July 26th, sowed white mustard. July 28th, commenced cutting oats and peas—at first with short-bladed scythes, but found it slow work; tried a Johnston reaper, and found that the machine cut the crop, which was a very heavy one, quite as well as we could cut it with scythes.

Last year the spring was about two weeks later than the year before. We did not sow mangels until about the first of June, but we soaked the seed, and the plants were ready to single out quite as early as the crop of 1871, sown three weeks earlier.

We will not trouble our readers with further details. We give these brief extracts from our diary to show the usual range of the sowing and planting season on our own farm.

Hints about Work.

These monthly Hints are written on the farm alluded to above, but we aim to make them generally useful. If some of our readers are harvesting wheat when we are talking about planting corn, they must bear in mind the difference in climate.

How to Plow and Plant admits of greater diversity and a far greater chance for improvement than *when* to plant. The seasons are, to a great extent, beyond our control, but the chemical and mechanical principles of agriculture are everywhere the same, and we should study to adapt them to the character of the soil and climate. Much of our success will depend on our ability to economize our own strength and energy and the strength of our men and teams. The more thoroughly we study scientific and mechanical principles the greater will be our ability to save labor.

"*Much Work with Little Labor*" should be the motto of every intelligent American farmer.

High Wages are a great blessing, provided the men can earn them. Temporary high prices, whether of wages or of commodities, obtained by strikes or combinations which check production, are a curse to individuals and communities.

The Best Men are the Cheapest.—Every experienced farmer knows this to be the case; and yet it is rare

that we discriminate sufficiently. We are too much inclined to pay all the men alike. This may not be unjust to the good men, but it is doing ourselves an injustice. Better let the stupid, plodding dullards go to work on the railroads.

Brains as well as Muscles are required on the farm. This is getting to be more and more the case every year with the introduction of more and better machinery.

Horses are Cheaper than Men.—Some learned ignoramus has said that a horse requires for his support the produce of five times as much land as a man. It is not true—unless you feed the man on hay and oats! Steam is cheaper than horses, and horses are cheaper than men, for the simple reason that coal is cheaper than hay and oats, and hay and oats are cheaper than beef, mutton, pork, butter, cheese, and bread.

Do not Walk when you can Ride.—We have seen a man weight down a roller with stones and then walk behind. Let the horses go right along for a few hours. Then let them rest, and *you* can go to work.

Husband your Strength when you can, and use it freely when you must. We do not like to walk 14 miles a day, after two horses, on soft ground, to harrow eight acres, when we can just as easily drive four horses and harrow sixteen acres by walking the same distance.

Double Plows will certainly come into general use for the same reason.

Two-Horse Cultivators, that take two rows at a time, have not as yet given much satisfaction on our own farm, owing to the difficulty of steering them. But this difficulty will soon be overcome.

Thomas's Harrow, until we get something better, is a useful implement in killing weeds in corn and potatoes. The real point is to use it as soon as the weeds germinate. Go over the field two or three times, or until every young weed is killed.

Cultivating Corn and Potatoes costs more than most farmers realize. We should use the best cultivators, and do the work carefully, thoroughly, and frequently.

Gypsum or Plaster may be applied to corn either before or at the time of planting, or it may be scattered on the plants after they are up.

Planting Corn is the great work of this month. We have written so much on the subject that it is unnecessary to give further directions here. Aim to put the land in good condition, and plant early. If you *must* plant late, select the small, early varieties of corn. Whatever you do or fail to do, do not neglect to keep your corn free from weeds. Clean, mellow land is the great secret of success in growing corn.

Potatoes as a rule are not planted early enough. Plant early and deep, and use the harrow freely to kill small weeds before the potatoes come up, or just at the time they are coming through the soil. We have used Thomas's harrow on potatoes until they are several inches high.

Horses are required to work very hard this month. Feed liberally, and be very careful to clean them after the day's work is done, so that they will get a good, comfortable night's rest.

Cows until turned out to grass should have good hay, and three or four quarts of bran, and one or two quarts of corn-meal per day; and it would be well to continue the bran and meal, mixed with a peck of cut hay, for a week or two after the cows are turned out to grass.

Sheep should have all the hay they will eat at this season. The grass is very succulent, and is apt to produce scours. Bring the sheep into the yards during storms, but be careful that the yards and sheds are dry and clean. Keep the sheep carefully tagged.

Ewes and Lambs should be comfortably housed at night and during storms. Nothing is so bad for them as wet fields and rainy weather. Feed the ewes liberally, and let the lambs have some bran and oats placed in small troughs separate from the ewes. A few sliced mangels are excellent for lambs at this season.

Swine are to be managed according to circumstances. In this section we usually keep only pigs enough to consume food that would otherwise be wasted. But if we keep pigs at all we should keep them well. A young, growing pig should have all the food of some kind that it will eat and digest. If the refuse of the house and barns and dairy are not sufficient for this purpose, we should feed more or less grain. If possible, let all the swine have the run of a good clover or grass pasture. Sows that have had pigs this spring, and which are to be fattened and sold next fall, ought to have more or less grain all summer. Breeding sows will keep in good condition on clover alone.

Sucking Pigs when from three to four weeks old should be fed separately from the sow. Fresh skimmed milk is excellent. Give also some oats, either whole or ground, or corn-meal, or soaked corn, or, in short, anything they will eat.

Weaning Pigs.—If the sow is to have another litter next fall, it is desirable to wean the pigs as early in the month as possible. But it is not good for the little pigs to wean them before they are six weeks old. Wean them gradually, and give a little new milk for a few days and fresh skimmed milk afterwards. If the sow is not to have another litter until next spring, it will be well to let the pigs run with her as long as she will give any milk. It will have a tendency to improve her milking qualities.

Young Pigs are Scarce this spring, and are likely to be still scarcer next fall. It will pay to give them good care and liberal treatment.

Get a Thorough-bred Boar of some of the improved breeds. This, with good care and feed, will soon give you a superior stock of swine. The small cost is nothing compared with the benefit.

Work in the Horticultural Departments.

Not only is the bulk of the sowing and planting to be done this month, but marketing also demands a share of attention from those who grow fruit and vegetables for sale. Those who send produce to market should take pains to find out the best methods of packing, and the styles of packages that are most popular in the proposed market. The kind and size of package, and the manner in which the produce is put up materially affect the sales. The necessity of assorting everything—whether vegetables or fruits—can not be too often insisted upon. The poorer quality should be kept at home, or sent to market distinctly marked as seconds. If good and bad are mixed together the whole will sell at only the price of the poor. Where there are several hands much time and money will be lost if they lie idle during the frequent rains that occur this month. As a matter of economy as well as discipline, have some work provided under cover that can be taken up in stormy days. In successful gardening the land is kept constantly occupied; as soon as one crop is off manure is applied, and it is made ready for another.

Orchard and Nursery.

Planting.—By this time most of the labor of planting will be finished, though trees that have been heeled in can be safely planted out until the middle of the month.

Grafting is sometimes performed as late as this, though great care needs to be exercised to avoid making wounds in the tree which are not easily healed, as at this season the bark separates very easily. All wounds should be covered with melted grafting wax, shellac-varnish, or paint.

Young Trees planted out this spring need to have the soil kept mellow around the roots. Keep the soil of a young orchard plowed, and let some crop which needs constant culture be planted between the rows. Supply such an amount of manure for the growing crop that the young trees will not have their growth checked from want of nutriment.

Mulch.—A good mulch around newly-planted trees will be serviceable in keeping the roots from drying out. Salt-hay or anything which will prevent the sun from striking the soil around the trees, will answer, even if it be only a small heap of stones.

Seed-beds.—All seeds of trees and shrubs should be sown by the middle of this month, except those which require to be sown as soon as they ripen. Shade with lattice-work made of laths, and support the ends on bricks to allow the air to circulate freely around the seedlings.

Nursery Trees.—Attend to those budded or grafted last year, and rub off all shoots which have started upon the stocks before they become large enough to require cutting.

Insects must be destroyed if healthy trees are expected, and the earlier this is done the easier it will be to discover and take means to kill them. Canker-worms and tent caterpillars are most destructive to the trees; directions have been previously given how to destroy them, while the manner of entrapping the Codling-moth, so destructive of fruit, is given on page 184.

Fruit Garden.

Currant Bushes.—The currant-worm makes its appearance this month and next, and the bushes should be dusted with powdered white hellebore as soon as it is discovered. Young plants ought to have been set out last month, but they may be moved early this month if care is taken to mulch them properly. Keep the soil well-cultivated between the rows, and thin out the old wood.

Strawberries.—Plants mulched in the fall should be looked to to see that their crowns are properly uncovered, and those which were not covered will need a mulch of cut straw or leaves to prevent the rains from washing the soil upon the fruit, thus making the berries for the most part unsalable. See directions for picking and marking on page 181.

Grape-Vines.—Keep the new growth tied to the trellises to prevent the wind from breaking off the shoots. Layers may be made by bending down canes of last year's growth, and covering with earth; in the fall the roots will have formed on the plants, and they may then be taken up and set out.

Raspberries and Blackberries.—Cut off the old fruiting canes, if not done last fall, and burn, and tie up the new growth to stakes or wires.

Kitchen Garden.

Asparagus.—The crop will be at its height this month. Those who wish to market it will find directions for cutting and packing on page 182.

Beans.—Put in the early sorts of snaps when night frosts are over, and by the middle of the month it is usually safe to plant the pole varieties. The poles should be set first, and the beans then planted around them. The rows should be four feet apart, and the hills the same distance.

Beets and Carrots will need weeding and thinning as soon as the rows can be seen; the thinnings of the beets answer for greens, and some persons sow a few rows very thick for this purpose only.

Cabbages and Cauliflowers.—Keep the early crop well hoed; sow seeds of the later sorts in seed beds for late planting.

Celery.—Sow in seed-bed to furnish plants for setting in July; the dwarf sorts are preferable.

Corn.—Plant early sorts of sweet-corn as soon as all danger from frost is over. The best plan is to sow in drills three feet apart, and afterwards thin the plants to a foot apart in the rows.

Cucumbers.—Plant seeds in frames and in the open ground, using plenty of seed to allow the bugs a share. A frame like the one described in the April *Agriculturist* will be found very effective in preventing the attacks of the striped bug. A hand-light may be placed over a few hills to secure some extra early fruit.

Egg-Plants.—These are very sensitive to cold, and should not be set out until the weather has become quite warm. If the plants are in pots they may be

turned out and planted, so that they will scarcely feel the change.

Herbs. — Sow in seed-boxes, and when large enough to handle set out in rows 18 inches apart allowing 10 inches between the plants.

Lettuce.—Ground from which the first crop has been taken should be spaded and some other crop planted. Set out plants for use later.

Martynia.—Set out plants or sow seed in hills two feet apart each way; the pods make excellent pickles if picked before they become tough.

Melons.—Treat the same as recommended for cucumbers.

Onions.—Sow the seed at once if not already done; weed the beds which are already up. It is a good plan to sow a few radish seeds with the onions, as this will allow of their being weeded much sooner than if the onion-seed was sown alone.

Parsley.—Sow in seed-beds, and prick out as soon as large enough to handle. It germinates slowly.

Parsnips.—Thin and weed out the plants as soon as large enough.

Potatoes.—Cultivate and hoe as soon as they show above ground. A dressing of ashes or plaster will be found to promote the growth. Plant for late crops.

Peas.—Brush those varieties already up before they get large enough to fall down. Plant for medium and late.

Peppers require the same treatment as egg-plants.

Rhubarb.—Never cut the stalks, but give a slight twist and pull, and the stalk is easily separated from the plant.

Spinach.—Sow for late. Sow seeds of New Zealand spinach for summer use.

Sweet-Potatoes.—Prepare ridges for the plants, and give plenty of manure; make the ridges 30 inches apart, and set the plants 15 inches in the rows. The plants can usually be bought so cheaply that it will not pay to raise them if but a few are wanted. Southern Queen is considered the best variety for Northern gardens.

Squashes.—Plant the first sorts in hills 4 feet apart each way; for late varieties 8 feet is not too much. Use plenty of seed to insure a stand.

Tomatoes.—Set out when the weather has become settled and the ground warm, putting the plants 3 or 4 feet apart. In garden culture some trellis or support is needed to keep the fruit from touching the ground.

Manure.—Save every material from which manure can be made, and in a few years the soil will show signs of the care bestowed upon it in extra crops.

Weeds.—See that all due care is taken to prevent the weeds in the fence-rows and corners from going to seed, as the labor of the year will be lightened if no weeds are allowed to go to seed. The gardener is obliged to exterminate the weeds that grow among his crops, but he is very apt to neglect the road-sides, fence-corners, and such places, which keep up an abundant supply of weed-seeds.

Flower-Garden and Lawn.

Lawns.—The lawn will need a careful raking, and afterwards to be rolled with a heavy iron roller. Before rolling sow grass-seed upon the bare spots where the turf was killed or injured during the winter. When the grass is long enough to need cutting, a lawn-mower is necessary, although a good mower can mow a small lawn neatly with a scythe.

Evergreens.—Plant this month, using every possible care not to allow the roots to become dry through exposure to the wind. Do not set so close that they can not develop into well shaped trees.

Flower-beds on the lawn and in the garden should be spaded up and manured where necessary. Where new beds are to be cut in the lawn, drive down small stakes at short distances to preserve the outline.

Seedlings.—Set out young seedlings of annuals which have been started in hot-beds, and sow seeds in the open ground.

Bedding Plants may be put out when all danger from frost is past. If dry, water after planting.

Dahlias and Tuberoses. Start bulbs to be planted out by the end of the month, as they do best when started in heat.

Borders should have manure worked in around the plants if the soil is poor.

Greenhouses and Window-Plants.

If care is not exercised in selecting plants to set out of doors the greenhouse is liable to look shabby. The aim should be to keep everything neat, and plants in good health, and have them so arranged as to please the eye in summer as well as in winter. Large plants such as Palms, Yuecas, etc., may be set upon the lawn where they will give a sub-tropical appearance to the grounds, but be sure and supply plenty of water so that they will not suffer from drouth.

Plunging.—There are many plants which can be plunged in the border without removing them from the pots; in the fall they may be readily taken up and transferred to the greenhouse.

Camellias.—If a shed or other shade is near the greenhouse the plants may be taken out during the summer, or the glass may be white-washed and plenty of air supplied so that they need not be moved.

House-plants will need care to keep them clean and free from insects. If they can be showered from a fine rose once or twice a week it will do much towards keeping them healthy.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending April 12th, 1873, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

Receipts.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th.	191,000	267,000	381,000	2,750	59,000	643,000
23 d's *last* m'th.	179,000	262,000	378,000	2,100	61,000	686,000
Sales.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th.	225,000	687,000	1,395,000	4,500	187,000	1,115,000
23 d's *last* m'th.	188,000	569,000	1,568,000	——	91,000	1,096,000

2. *Comparison with same period at this time last year.*

Receipts.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1873.	191,000	267,000	381,000	2,750	59,000	643,000
26 days 1872.	182,000	141,000	976,000	8,500	239,000	393,000
Sales.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's 1873.	225,000	687,000	1,395,000	4,500	187,000	1,115,000
26 d's 1872.	218,000	1,083,000	1,827,000	112,000	303,000	939,000

3. *Stock of grain in store at New York.*

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Apr. 7, 1873.	483,904	866,207	55,819	83,680	666,598	178,232
Mar. 10, 1873.	671,197	2,515,892	37,302	293,493	846,596	166,392
Feb. 10, 1873.	805,561	3,189,195	39,589	468,934	959,134	173,100
Jan. 13, 1873.	1,177,359	4,743,961	44,039	571,051	1,367,187	175,805
Dec. 9, 1872.	1,335,975	5,675,730	51,665	624,554	1,608,565	215,396

4. *Exports from New York, Jan. 1 to April 10:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1873.	296,846	1,000,712	3,182,533	1,004	11,830	6,162	18,330
1872.	217,804	1,878,515	3,579,949	170,330	——	8,730	67,317

Gold has been as low as 115¼, and as high as 119⅛—closing April 12th at 119, as against 115½ on Mar. 13th. .....The wide fluctuations in gold, and the extreme stringency in the Money market, have been decidedly depressing and injurious to legitimate business.... ...The movements in Breadstuffs have been very moderate as a rule, and prices have favored purchasers, with holders offering supplies rather urgently. The home trade demand has been confined within very narrow limits. There has been a comparatively fair export inquiry noted for shipping grades of Flour, spring Wheat, and mixed Western Corn, but the low rates current for foreign exchange, and the firmness in ocean freights, especially to British ports, have impeded the execution of orders for stock on foreign account. Toward the close, the general market seemed steadier, with less eagerness on the part of holders to realize, and a somewhat more confident call from shippers, in view of the more favorable foreign advices.....Provisions have been generally firmer in price, with lighter offerings of stock, particularly of hog products, and a good demand noted largely on speculative account.....Cotton has been moderately active, but irregular in price, closing somewhat stronger, especially for forward delivery.....Wool has been further reduced materially in price, under a pressure to sell, while the demand has been on a restricted scale, though, at the close, more disposition to purchase was apparent at the ruling figures. The extraordinary tightness in the Money market has been adverse to free dealings, and decidedly against the interests of sellers, as to values. .....Tobacco has been moderately inquired for at steady rates.....Hay, Hops, and Seeds, have been very quiet, at the current quotations..... Straw has been scarce and in request.

CURRENT WHOLESALE PRICES

	Mar. 13.	April 12.
PRICE OF GOLD	115¼	119
FLOUR—Super to Extra State	$6 00 @ 8 40	$6 00 @ 8 25
Super to Extra Southern	6 10 @13 00	6 10 @12 75
Extra Western	6 90 @13 00	6 90 @12 75
Extra Genesee	8 50 @10 50	8 30 @10 50
Superfine Western	6 00 @ 6 75	6 00 @ 6 60
RYE FLOUR	5 65 @ 6 00	4 10 @ 6 00
CORN-MEAL	3 00 @ 3 85	3 00 @ 3 75
WHEAT—All kinds of White	1 80 @ 2 15	1 85 @ 2 25
All kinds of Red and Amber	1 45 @ 2 00	1 85 @ 2 00
CORN—Yellow	65 @ 67	64 @ 66
Mixed	63½@ 66½	63 @ 65½
OATS—Western	45 @ 52½	48 @ 56½
State	47 @ 52½	50 @ 56½
RYE	85 @ 95	87 @ 93
BARLEY	75 @ 1 25	75 @ 1 35
HAY—Bale, ₱ 100 lbs	1 10 @ 1 65	1 00 @ 1 45
STRAW, ₱ 100 lbs	70 @ 1 85	55 @ 1 20
COTTON—Middlings, ₱ lb	20¾@ 21¾	19¾@ 20¾
HOPS—Crop of 1872, ₱ lb	40 @ 55	40 @ 55
FEATHERS—Live Geese, ₱ lb	50 @ 75	50 @ 75
SEED—Clover, ₱ lb	8¾@ 9	8¾@ c
Timothy, ₱ bushel	3 50 @ 4 00	3 50 @ 3 87
Flax, ₱ bushel	2 20 @ 2 30	2 20 @ 2 35
SUGAR—Refi'g & Grocery ₱ lb	8 @ 10¾	7¾@ 10¼
MOLASSES, Cuba, ₱ gal	20 @ 45	30 @ 40
New Orleans, ₱ gal	56 @ 75	55 @ 75
COFFEE—Rio (Gold)	17¼@ 20¾	16¾@ 19¼
TOBACCO, Kentucky, &c., ₱ lb	7½@ 15	7¾@ 15
Seed Leaf, ₱ lb	8 @ 50	9 @ 75
WOOL—Domestic Fleece, ₱ lb	52 @ 72	45 @ 60
Domestic, pulled, ₱ lb	40 @ 60	30 @ 52
California, clip	20 @ 40	18 @ 34
TALLOW, ₱ lb	8¾@ 9	8¾@ 9
OIL-CAKE—₱ ton	$2 50 @40 50	$2 50 @41 00
PORK—Mess, ₱ barrel	15 50 @16 00	16 50 @17 87½
Prime, ₱ barrel	11 75 @12 25	12 75 @13 00
BEEF—Plain mess	9 00 @11 00	9 00 @11 00
LARD, in tres. & barrels, ₱ lb	7¾@ 8¾	8¾@ 9
BUTTER—State, new ₱ lb	30 @ 48	35 @ 47
Western, ₱ lb	10 @ 33	30 @ 40
CHEESE	10 @ 17	9 @ 16¾
BEANS—₱ bushel	2 00 @ 3 25	2 00 @ 3 60
PEAS—Canada, free, ₱ bu	1 20 @ 1 30	1 25 @ 1 35
EGGS—Fresh, ₱ dozen	25 @ 28	19¾@ 21¾
POULTRY—Fowls	9 @ 17	12 @ 24
Turkeys—₱ lb	12 @ 18	15 @ 24
Geese, ₱ pair	1 50 @ 3 50	2 00 @ 3 50
Ducks, ₱ pair	75 @ 1 25	1 00 @ 1 62½
TURNIPS—₱ barrel	75 @ 1 50	75@ 1 50
CABBAGES—₱ 100	8 00 @15 00	8 00 @14 00
ONIONS—₱ bbl	5 50 @ 7 50	9 50 @10 00
BROOM-CORN—₱ lb	3 @ 7	3 @ 7½
APPLES—new, ₱ barrel	1 50 @ 3 25	1 00 @ 3 00
POTATOES—₱ bbl	1 50 @ 3 25	1 50 @ 3 62½
SWEET POTATOES—₱ bbl	3 25 @ 5 75	3 50 @ 4 00
CARROTS—₱ bbl	1 50 @ 2 00	3 00 @— —
CELERY—₱ doz	1 50 @ 1 75	1 50 @ 1 75

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
March 17th	6,696	139	1,024	21,116	39,614	68,573
March 24th	6,902	151	1,115	10,937	33,962	53,073
March 31st	8,387	127	1,280	13,704	30,840	54,638
April 7th	6,417	110	1,350	14,738	39,258	61,893
Total for 4 Weeks	28,706	517	4,769	60,439	143,674	238,177
do. *for prec. 4 Weeks.*	28,795	395	2,738	76,121	133,071	241,120
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	
Average per Week	7,177	154	1,192	15,115	35,918	
do. do. *last Month*	7,199	99	684	19,030	33,268	
do. do. *prev's Month*	8,634	109	679	6,243	41,775	

Beef Cattle.—The supply of cattle during the past has run very nearly the same as the previous month. The quality has been common to medium flesh, with a sprinkling of good cattle. Texans are coming in less freely, but show better feeding. Prices slightly advanced during the 2d and 3d weeks, but the close averages same as the opening.

The prices of the past 4 weeks were:

	Range.	*Large Sales.*	*Aver.*
Mar. 17	9¼@14½c.	11 @12½c.	11¾c.
Mar. 24	10 @14½c.	11½@12¾c.	11¾c.
Mar. 31	10¾@14½c.	11½@12¾c.	11¾c.
April. 7	10 @14 c.	11 @12½c.	11¾c.

Milch Cows.—The supply is greater than last month, and while choice cows have sold readily at the highest prices, poor have sold slowly. The rates are $40 @ $50 each for ordinary, $65 @ $75 for fair to good milkers, and choice $80 @$85.....**Calves.**—The receipts of both live and dressed veals have increased since last report. A considerable number of small, thin calves have been sent in, which sold for little more than the price of their skins; the senders running the risk of having them seized when slaughtered here. Quotations for live, 8c. @ 11c. ₱ lb; dressed, 7c. @ 10c. for poor to good, and 10c. @14c. good to choice..... **Sheep.**—The receipts are not as large as the previous month, and prices have been well sustained with light transactions. One cause of lighter receipts is, the Western farmers are holding to clip, thus saving the wool, and reducing the freight per head, as they can get 50 more sheep into each car at same rate per car after clipping. Quotations. The general range is 7½c. @ 8½c. unshorn, and 6¼c. @ 6¾c. clipped..... **Swine.**—The receipts of Western dressed during the past 4 weeks were 5,136; they have now ceased to arrive. Live hogs are arriving more freely with prices slightly advanced above last month. Quotations, live 6c. @ 6½c. city-slaughtered 7c. @ 7¾c. for heavy to medium, and 7¼c. @ 7½c. for light weights and pigs.

DON'T FORGET

THE PREMIUMS!

2

Months More.

Two Months Yet Remain—May and June—during which *any* person who wishes to obtain one or more of the useful and valuable articles offered in our Premium List (of which a copy will be sent free to any applicant, see page 198) can easily get them. This has already been done by more than 14,000 persons, who during years past have tried with success the raising of Clubs of Subscribers for our papers, and availed themselves of the liberal offers of Premiums made by the Publishers.

We invite **all** our Subscribers to take hold of this work and secure a Premium while the offer is open. Specimen copies of both papers will be sent to any wishing to show them for this purpose.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.**.....**Post-Office Money Orders,** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and *take his receipt for it.* Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and $12, may afterward send 10 more subscribers with only $8; making a club of 20 at $1 each; and so of the other club rates.

Delivery of Chromos.—We have delivered all the Chromos due to subscribers to the *American Agriculturist* up to January 31st, 1873. We shall continue the delivery with the utmost dispatch.

No Anonymous Letters.—Those who write us asking information or making statements of experience can not expect to have their letters noticed if they omit their proper names. No one would think of writing to a lawyer, banker, or merchant, without giving his name, and we do not see why it should be considered proper to address editors anonymously. If a person asks information he can not want it very earnestly if he does not care to sign his request, and if one gives information it is worthless unless it has the writer's signature. Take notice—we do not publish names where a desire is indicated that we should not do so. Sign the article what you please, but give the real name besides. We shall hereafter notice no anonymous letters.

Do Snakes Swallow their Young? At the request of a professor of natural history in one of our colleges, we asked in February last for evidence upon this disputed point. In response, we have received 69 letters, varying in length from a few lines to several pages, all giving the testimony of the writers that they have witnessed the act of snakes swallowing their young. Some of the variety stores have a sign reading, "If you don't see what you want, ask for it," and we have found the best way to get information upon any obscure point is to "ask for it." The *Agriculturist* reaches such a great variety of readers, that we rarely ask for experience upon any point that we do not receive a reply from some quarter. Of these letters, 40 had distinct post-marks, and of 29 the post-marks were perfectly illegible. Of the whole 69 there were five in which there was no clue to the address of the writer upon the inside or outside of the letter. Arranged by States, there were from Mass. 4, N. H. 2, Ct. 6, R. I. 1, N. Y. 10, N. J. 7, Pa. 6, Ohio 7, Ind. 1, Ill. 1, Mich. 2, Iowa 2, Minn. 2, Wis. 3, Kansas 2, Tenn. 1, Va. 1, W. Va. 1, S. C. 1, Ga. 1, Miss. 1, La. 2. As we have now all the replies we are likely to receive, we shall transfer them to the professor in whose behalf the request was made, thanking the writers for the interesting contributions they have made towards clearing up an obscure point in the history of our reptiles.

An Enraged Editor.—Some correspondent wrote about an ailing dog, and the letter was handed to one of our associates who is wise in such matters. The editor in question carefully read the account of the dog's case, carefully considered the whole matter, and then carefully wrote a long letter giving his view of the case and suggesting the proper treatment. The letter being at length finished, the whole affair occupying half an hour or more, he put it in an envelope and turned to find the address. The correspondent had not signed his letter! This editor is generally a very mild man, but we do not think it would have been safe for the correspondent to have met him just then. The man with the sick dog will know why he received no reply. Moral: always sign your letters.

A Contemporary's Opinion.—"The Watchman and Reflector" has the following, which we give as a specimen of the many commendatory notices we receive from our friends of the press: A few evenings ago we read through consecutively the January, February, and March numbers of the *American Agriculturist*, and learned enough of farm-work, household-work, valuable recipes, and interesting facts and suggestions, to last us the remainder of our natural life, if we could put it into practice! It is one of the very best family papers published: sprightly, entertaining, instructive, and practical, and edited with great tact.

"Put it in the April Number," writes "A Subscriber," who dated his letter of inquiry March 27th, a day upon which many of the readers had the April No. in hand, and one upon which it was going to all of them outside of the city. "A Subscriber" should remember that anything that reaches us on the 12th of March (not to mention the 27th), stands but a shadow of a chance of being replied to before May. If subscriber had signed his name he would probably have had a reply by mail; but if people do not care to put their own names to what they write the matter can not be of much importance to them.

No Name.—When a correspondent writes to ask what we think of Messrs. Boans & Co.'s or any other superphosphate, and if it is a good fertilizer for early cabbages, etc., he should remember to put his name to his letter, and inclose a stamped envelope, as we generally reply to such inquiries by mail.

National Columbarian Society.—Agreeably to previous public advertisement, a meeting was held on Wednesday the 9th inst., at 14 Murray St., for the purpose of forming a National Pigeon Association, at which Mr. Wm. Simpson, Jr., of West Farms, N. Y., was chosen permanent President; Mr. A. B. Estes, Corresponding Secretary; with Vice-Presidents and other officers in many of the States of the Union. Any information pertaining to the objects and interests of the Society may be obtained by addressing the Secretary, P. O. Box 316, New York City.

Red-Top for Hay.—"F. R. W.," St. Pauls. Red-top is not the best grass for hay, except in moist, undrained soils liable to be occasionally overflowed. Then, if cut early, it has a thick bottom, and makes a heavy crop of second-rate hay. Timothy on moist, drained soils is far preferable, or on uplands of fair character. If red-top is chosen, there should be about two bushels, or 28 pounds, sown per acre.

SUNDRY HUMBUGS.—The temptation is sometimes strong to refer our readers to any number for the past few months for "Humbug" intelligence; but this would hardly be right, as these swindling chaps are smart enough to know that if they keep at one thing long they will be found out; so they assume new changes frequently, just as certain birds change their plumage with the season.

COLLECTING NAMES.

The success of a majority of the swindles is due to personal and confidential appeals by letter. A person, not familiar with engraving and printing matters, receives by mail what appears to him like an autograph letter; and if he be a simple-hearted and withal rather vain person, he is so much flattered at being taken into the confidence of one who will show him how to make money, that he fails to see that the letter is a lithographic reproduction, and that thousands just like his have gone to thousands of people all over the country. It is too much for him. "The people think him a simple kind of chap, but here is a merchant in the great city of New York who found out that he is somebody. He'll show them a thing or two"—and bites at the bait. We know the rest, for is is told in these frequent letters of complaint. In February last we showed the various methods resorted to by swindlers to procure names. We give here a case illustrating one method in which many names are obtained. The following letter was sent to a highly respectable florist's establishment in Maryland:

"I am about issuing a new pamphlet, for which I wish a large number of addresses of persons in different sections of the country. I would like to buy your original letters received in answer to your advertisements. I will pay you $15 per M., and guarantee to return them after copying the addresses. Please send at once what you have on hand by express, C. O. D., $15 per thousand, and oblige, yours respectfully, etc."

An offer like this made to a thoughtless or an avaricious man, or falling into the hands of a dishonest clerk, is quite as likely to be accepted as to be refused. The address of this letter was Amity street, New York, in just that part of the street where dealers in the queer, and other swindlers, abound.

COMPLAINTS OF PROBABLE SWINDLERS.

We have frequent letters which state that the writers have ordered such and such things from persons who have advertised, and as they have received no returns ask us to denounce the advertisers as swindlers and humbugs. Sometimes a person is complained of in the strongest terms, and the complainant does not sign his letter! If we were to act upon these unsubstantiated statements of grievances we might injure an honest person—as we have too much experience of the uncertainty of mails to allow us to put down one as dishonest because an expected reply does not come from him. Before a person can have the distinction of a place in this column, we must be ourselves thoroughly convinced that he is a humbug, and must have such evidence as will convince a jury that we were fairly warranted in exposing him as such. We do not give time and money to this humbug business for the amusement of ourselves or our readers, but solely to save unsuspecting persons from the hands of sharpers. We have complaints which make it necessary to advise caution in dealing with certain $5 sewing-machines. A person in Virginia has advertised one of these concerns as a swindle, and we have complaints that money has been sent and no machine received. There are small machines at the place advertised, but there seem to be two agencies for the same machine at one place, and agricultural implements "and all articles needed for farm work" are offered in the same circular with the sewing-machines.....Serious complaint is made of a dealer in needle-books and other fancy articles at Paterson, N. J.....Inquiries come from Oregon about a Philadelphia pen concern, who have received money and send neither pens nor reply. We can not understand how a person in Oregon or elsewhere can send $10 to an unknown party in Philadelphia or elsewhere for pens or anything else.

BOGUS COMMISSION MERCHANTS.

A printed circular in the form of a regular prices current is sent us from Danbury, Ct., with the statement that it has been widely circulated in Vermont, and that by reason of it large amounts of butter, maple sugar, and other produce have been sent to Danbury. Upon the arrival of the produce at Danbury, letters were received directing it to be forwarded to New York and elsewhere. The Danbury people saw the swindle, and held on to a large share of the goods, and kept it until the shippers could be heard from.

USELESS INQUIRIES.

It is supposed that every reader of the *Agriculturist* has at least the numbers of the present year. If those who make inquiries about this or that scheme will look over these few back numbers they would see that their

questions are in many cases already answered. We have said all that is needful about $4 watches, doubtful tea enterprises, distribution of watches and jewelry by ticket, and many other worn-out games..... Here is one who inquires if so and so are "the only agents of the Royal Havana Lottery or not." We do not advertise this kind of thing.

THE TEA, COFFEE, AND SPICE DODGE.

W. T. Mason & Co. have been sending out circulars offering great inducements in the way of tea and coffee bargains. We have been convinced that the concern was bogus, but had no positive proof of it. We have sent several times to their place of business, but could find no one in, and the neighbors seemed to know but little about them. A recent issue of the "American Grocer" says, "The firm of Wm. T. Mason & Co. belongs to that species of black-legs known as 'Sawdust Swindlers,' as the samples they send are nothing but a box of that article." It seems that they had an office over a large, respectable wholesale grocery store, and called for their letters, which were received in a box, twice a day. The concern has been broken up.

IN THE MEDICAL LINE.

We have some few new names, but they sing the same old tune—"take our stuff or die."..... A person in Indiana sends us several of the worst kind of quack advertisements, cut from papers, and says: "What do you know about the inclosed advertisements? Will look for answer in *American Agriculturist*." We think that those who published the advertisements are scoundrels, and those who will be taken in by them are fools, but we don't "know" anything about it.....The "National Surgical Institute" at Indianapolis sends out a small circular upon which are pictured deformities more repulsive, if possible, than are shown upon the large sheet. .....A citizen of Rahway, N. J., is in trouble. He engaged in the sale of a quack medicine, but found that the people there read the *Agriculturist*, and would not buy. He thinks we have damaged his sales to the amount of one hundred dollars, and would like to have us make good his loss. It consoles us when we are reminded of this unfortunate individual's loss to think of what the people of Rahway have gained.....One reading the circular of "Seven Barks" could feel very sure that he had found a cure-all, did not the circular of "Mountain Herb Syrup" profess to cure quite as much. The discovery of each is equally wonderful, but the circular of the last-named is a little the more *pious*. These things come up, a new crop every year, flourish for a short time, and die away, and we suppose will do so as long as there are weak-minded people to try them. Almost anything put up in a bottle with a showy label will sell, provided the claims as to its curative qualities are made strong enough to act upon the hopes and fears of people who think they are sick:... ..The "Journal of Applied Chemistry" translates from "Jacobsen's Industrial Journal," published at Berlin, the following:

"FIVE-MINUTE FRAGRANT PAIN EXTRACTOR.

"This preparation, which is warranted to cure every pain in five minutes, is manufactured by Prof. Dr. Walter Scott, New York Medical University, No. 8 University place, New York City, and sold for $1. The wrapper on the bottle contains the vignette of a man's head with the hands clasping his temples. A list of 22 diseases is given, which this medicine will cure. The label on the bottle gives directions for use, viz.: 1. Rubbing the remedy into the afflicted part with the bare hand. 2. Moistening a cloth or flannel with it, and binding it on the part. 3. Rubbing it on with a brush until all pain disappears.

"In a wide, four-sided bottle is about 200 grams of a clear, colorless liquid, which smells of ether, and consists of

Ether.....	6.0 grams.
Glycerine.....	21.0 grams.
Common salt.....	3.4 grams.
Distilled water.....	170.0 grams.

"Any apothecary in Germany would put up this mixture for one-sixth of that price. It is plain that this Professor and Doctor Scott belong to the money-makers. In North America, where there is no official medical inspector, the price of $1 is considered very reasonable. That a University Professor should prolong his existence in this manner seems to us here in Germany a high degree of moral turpitude. Not so in North America, where people take different views in this respect."

It never entered into the mind of the German editor that one man or a few men could assume the name of a university, and publish their quackery without being stopped by law. We have often stated there was not in any proper or legal sense any such institution as this "University."

A LOAN SWINDLE.

J. J. Wells, Greenville, Pa., advertises to loan $300,000 on good security. Correspondents must send description of security, and "$2 to pay for examining securities." One of our correspondents has investigated the matter, and finds that Wells does not advertise in the paper in his own town, where he could loan more than the named amount on real estate security at ten per cent. The $2 for examining explains the whole thing.....Chaps who are known as

DEALERS IN THE QUEER

seem to have found some other occupation. The only new names we have are C. E. Ruh and J. E. Naylor, who modestly give no address, but hail from New York in general. Theodore G. Chambers may be found at 609 Broadway, as may another who does not give his name, but says James Watson is on the door. In language more forcible than elegant he cautions his customers against swindlers on the street, and says, "You must bring every dollar you can raise," and adds, "I will guarantee that you will be a rich man in 30 days." And some will be fools enough to do it.

Alsike Clover.—"G. E. S.," Lima Center, Wis. The seed of alsike clover must be gathered from the first crop. It will not seed again the same season, as red clover will.

Cribbing.—"H. E. L.," East St. Johnsbury, Vt. Cribbing is a vice, and not an unsoundness. The colt of a cribbing mare may not necessarily be a cribber. The vice often springs from indigestion, and this being often a hereditary complaint, such a colt should be carefully guarded against acquiring the vice.

Harrowing.—"W. M. H.," Watertown, Tenn. Two horses are abundantly able to draw a forty-tooth harrow covering thirty square feet of ground, made with two wings, hinged together in the center, of oak-timber bars 3 × 4 inches square, with ¾-inch teeth, kept sharp, and placed so as to draw cornerwise to the earth. A team traveling two miles an hour for ten hours, and passing twice over the ground with a six-foot harrow—that is, taking three feet of fresh ground at each bout, and going over the other three feet the second time—will harrow about seven acres in a day. A team, however, should move at least three miles an hour when harrowing, and should take occasional rests.

Milk-Pails.—"L. W.," Crisfield, Md. Wooden milk-pails should never be used; it is next to impossible to keep them sweet. Tin pails are easily kept clean, but soon wear out. The best milk-pail we know of is the Iron-clad Milk-pail, which is easily cleaned, and is strong and durable.

120 Bushels of Corn per Acre.—"J. W. N.," Galloway, Arkansas. The majority of the reports about such crops of corn as 100 or 120 bushels per acre are only believed by credulous persons. Nevertheless, such crops are raised occasionally, but only by the best farmers. They never grow by chance. How a crop of over 100 bushels of shelled corn (nothing allowed for shrinkage, however) was raised last season by one of the best farmers in the country was told in the *Agriculturist* for April.

Swivel-Plows.—"A. C. G.," St. Louis, Mo. Holbrook's Swivel-plow is, we believe, undergoing improvements, and for that reason is not advertised. When the manufacturers are prepared to supply the demand for this much-needed implement, they will probably take means to inform the public.

Culture of Cow-Peas.—A "Subscriber," Knoxville, Tenn., sends us his experience in raising cow-peas. He has raised them for several seasons, but has not been able to make them a really paying crop when sown by themselves. The chief difficulty met with is in harvesting them. He has sown them in drills along with the corn crop, in the furrow made by the shovel-plow the last time of cultivating the corn, in June or early in July. The furrow is made near the corn, and five or six peas are dropped between the corn-hills. When the "middles" are split by the shovel-plow, the peas are covered, and that is the end of the planting. The corn is cut late in August, and then the peas make a rapid growth until early in October. They are pulled before frost, stacked in small cocks with the roots outwards, and left to cure for two or three weeks. They stand any amount of rain without injury. For a soiling crop, or for plowing under, they are equally valuable. They stand drouth remarkably well, by reason of their habit of deep rooting; and this peculiarity gives them a power of deriving a large portion of their nutriment from the subsoil, and of growing luxuriantly on soil that has been badly worn and shallow plowed; and this tends to make them very valuable for plowing under to improve the surface soil. The difficulty of mowing and drying them when the crop is rank and heavy is a serious drawback, and information as to the practicability of using a mowing-machine to cut them when sown broadcast is requested. Possibly, some of our Southern readers who have tried this method will communicate it for the benefit of "A Subscriber" and others interested. We have mowed peas (common peas, not cow-peas, which, by the way, are not peas, but a species of bean) with the mower without any trouble, by lowering the points of the cutting-bar, as in mowing lodged clover. Peas generally are mowed with the scythe by making a straight drawing cut towards the mower, and thus gathering them into bunches, in which they are left to dry. We can not see why the cow-pea could not be harvested in either of these manners.

Standard Bushel.—"Subscriber," Howard Co., Md., asks the following questions: "(1st) What is the standard bushel of mangels? (2d) How many bushels of mangels is a fair crop? (3d) Will land that has been ten years in clover produce a fair crop of late cabbage without other manure than the sod? (4th) Will refuse salt composted with stable manure and plaster make a good manure for cabbage, egg-plants, and other garden crops?—(1st) The heaped bushel of 2,750 cubic inches is the customary bushel. There is no legal standard for these roots. (2d) 600 to 800 bushels. (3d) No. (4th) If the salt and plaster are used in small quantities and the stable manure used abundantly, yes; if otherwise, no.

Garget.—"H. E. L." A cow that has had garget two or three times will probably have a swollen udder every time she calves. Such a cow should be watched very narrowly, be fed very sparingly before she calves, and if her bag becomes filled up she should be milked a week previously if necessary. Such cows should go to the butcher.

Seeding Grass in the Spring.—"S. S.," Shelburne Falls, Mass. Grass and clover may be seeded in the spring, if sown early, without any protecting crop. The ground should be well prepared, made very fine, and the seed either brushed in with a bush-harrow or covered by rolling. A dressing of stimulating fertilizer, as guano or wood-ashes, would be useful. As it is now too late for such a seeding, a crop of late oats cut for fodder might be sown with the grass seeds. We have succeeded in getting a good stand of grass and clover with buckwheat sown on the 25th of June.

Engine for Thrashing-Machine.—"S. P. A.," Newark, N. J. To run a thrashing-machine a four-horse engine would be advisable, as it is more economical to have power to spare than to run up to the full capacity of an engine. Any force-pump would answer to raise water 150 feet to a tank; the American Submerged Pump is as good a one as we know of.

Baling Stable Manure.—The waste of fertilizing matter produced in large cities is enormous; and the cost of carriage on that portion which is utilized is so great as to largely restrict its use. A process of drying, compressing, and packing the stable manure made in cities has been invented and patented. If it should turn out to be feasible, it will undoubtedly have the effect of cheapening the cost of manure to farmers at a distance from cities, and to the utilizing of a much larger proportion, if not the whole of it.

Hay without Barn-yard Manure.—"A. S. K.," Ct. Hay may be grown without stable manure if other fertilizers are judiciously used. Plaster, wood-ashes, muck composted with lime and a small portion of salt, and about 250 to 300 pounds per acre of some of the ammoniacal manures, of which the best probably is fish guano or dried blood-and-flesh manure, are all valuable for grass crops. The meadow should not be pastured in the fall, and if it can be irrigated from a well or spring success will be certain.

Cows for Draft Purposes.—"L. L.," Prince William Co., Va., writes that as an old English farmer he begs to correct the statement in the *Agriculturist* that cows are used for draft purposes in England. "L. L." probably refers to the statement in "Ogden Farm Papers" of February, that "many a farmer *in Europe* does all his plowing with his cows." This is true of continental Europe, which is what was meant. England was not referred to.

Crude Petroleum.—"J. C. W.," Harford Co., Md. Crude petroleum is a very excellent application for wooden out-buildings or a picket-fence. The first coat will be rapidly absorbed, and a second one may then be given. Its preservative effect is very considerable. If desired, a coating of some of the chemical paints may be put on over the petroleum.

Fence Wire.—"W. A.," Prince William Co., Va., asks what is the cost and weight of fence wire and where it can be procured.—No. 9 wire, the usual size for fencing, is worth about 10 to 12 cents a pound, and one rod in length weighs one pound. Any agricultural implement dealer in New York, Baltimore, or Richmond can procure it, or those who advertise in our columns might be relied upon to furnish it.

Bog Spavin.—"A Subscriber," Bewickley, Pa., has a horse which has a large swelling on the inner part of each hind knee or hock-joint, and small lumps on the vein on each side of the hock-joints. He asks, What is the matter—is it a spavin, and what shall I do?—It is a spavin, known as bog or blood spavin, caused by overwork or over-driving or a sprain. It consists of an excessive secretion of the fluid by which the joint is lubricated, and if it will not yield to the application of iodine ointment, rubbed on the part morning and night, it should be treated by a surgeon. Sometimes the swelling is punctured and tightly bandaged, but this is dangerous in the hands of any but a surgeon, as if improperly performed it might permanently injure the joint. There is no attendant lameness, and perseverance with the iodine ointment may possibly bring about a cure.

Indian Tan.—"J. B. W.," Licking Co., Ohio, asks for the Indian process of tanning buffalo robes. This was told in the *Agriculturist* of September, 1872, which may be had for 15 cents.

Arithmetical.—"H. B. G.," Dayton, Kansas, asks us if the following problem can be solved by alligation alternate, viz.: A man buys 100 head of stock for $100; he buys cows at $10, hogs at $3, and sheep at 50 cents—how many of each kind did he buy?—It can be solved by alligation alternate, by which rule the ratios of the quantities required are 1, 1, and 22, but as 100 is not divisible by the sum of these numbers without a fraction, the result is absurd as regards cattle; it would be 4 1/2 cows, 4 1/2 pigs, and 91 1/2 sheep. If, however, instead of 100, 600 is taken, then the answer would be a rational one, viz.: 25 cows, 25 hogs, and 550 sheep.

Boring.—"W. A." asks which is the simplest method of boring or drilling a considerable depth through earth or rock.—It is done by steel-pointed drills raised by machinery, driven by steam or hand, and permitted to fall by their own weight. Experience and skill are required in this business, without which it would be impossible to succeed. In the neighborhood of Charleston, W. Va., or Burning Springs, Wirt Co., W. Va., it would be easy to secure men used to bore salt and oil wells.

Green Manuring.—"W. A." asks what are the comparative values of peas, buckwheat, and clover as crops for plowing under.—The chief advantage of buckwheat is its rapid growth, which enables two crops to be plowed under in one season. A crop of peas furnishes more nitrogen to the soil than buckwheat, but its bulk is not greater. Clover not only furnishes a great bulk of leaves and stalks but a large quantity of roots in addition, which on decaying leave the soil porous and open, and in the best mechanical condition; besides it will yield two crops of fodder or hay, and then afterwards, in the second or third year, furnishes a crop to plow in. On the whole, clover is much the best manurial crop.

Feeding a Yearling Colt.—"O. H. C.," Saratoga Springs, N. Y., being a novice, is troubled lest he is overfeeding a yearling colt, which gets 4 quarts of oats and nearly all the hay it will eat. The colt is very large and is growing finely.—There is no danger in this feed if the colt is allowed plenty of exercise, and is given salt regularly and the hay and grain are sound and good. There is more harm done by stinting colts in their feed than by overfeeding, in most cases.

Unhealed Wound.—"E. A. B.," Newark, N. J., asks how he should treat a bare horny spot on the lower part of a horse's front leg, caused by a bruise last fall, but which does not heal up satisfactorily.—There is no doubt something wrong at the bottom of the wound, that prevents healing. We would apply warm poultices of linseed meal until the old wound was reopened and a healthy suppuration established, after which the wound should be treated with compound tincture of benzoin until properly healed. If the sore becomes indolent, moderate caustics, as powdered blue-stone, would be useful, until it presents healthy granulations.

Plan for House.—"S. K. F.," Indianapolis, wishes to build a house for a home, to cost $15,000, and asks for a good plan.—In spending that amount of money it would be a proper and profitable economy to employ a good architect to draw the plans and specifications, and see that the building was erected and completed in accordance therewith. A competent architect could easily save more than his fee of 5 per cent on the cost, in supervising the contracts and the building.

Poultry Profits.—H. E. Lee, Guilford, Ct., sends the following account current with 36 Light Brahma hens for the year 1872, as follows:

Dr.	To 64½ bus. corn and oats	$85.06
	40 lbs. butcher's scrap	1.20
	¾ lb. red pepper	.15
	28 dozen eggs set, @ 27⁵/₆c.	7.79
		$74.20
Cr.	By 383 ⁵/₁₂ dozen eggs sold	$166.69
	chickens sold	29.59
	value of manure	10.00
		$146.28

Leaving a profit of $72.08, or two dollars per hen.

Peruvian Guano.—"Ebenezer," Lawrence, Mass., purchased last season some Peruvian guano, in bags stamped as follows: "Warranted No. 1 Peruvian Guano; imported into the United States by the Agents for the Consignees of the Peruvian Government. Guanape." He asks, Is this the best Peruvian guano? He thought it was not. Where can he get the pure article?—Pure Peruvian guano, as we used to know it some years ago, is a thing of the past. The "Peruvian guano" from the Guanape Islands is of very variable quality, and at the best is deficient in ammonia. The warrantee, of course, is no guarantee of quality. It is well known and understood that there is no standard for that any longer, and purchasers are obliged to run the risk of getting a good or poor quality.

Bureau of Statistics—Notice.—The Chief of the United States Bureau of Statistics announces that the German and French editions of his Report on Immigration are now ready, and will be forwarded at an early day to Hamburg, Bremen, Antwerp, Havre, and Trieste, for distribution in Germany, Austria, France, Switzerland, and Belgium. A copy will be sent to any address in either of the above countries, on the receipt of twelve (12) cents, in postage-stamps, for the German, or eighteen (18) cents for the French edition. Address, Bureau of Statistics, Washington, D. C.

Plaster on Spring Crops.—"C. W. H.," "A New Reader," and others are informed in reply to inquiries, that plaster is a valuable application to almost all spring crops. Grass, clover, corn, spring wheat, and oats are all benefited by it. It is often the cheapest fertilizer that can be purchased, as 100 pounds per acre at a cost of 50 cents has often doubled the yield of grass or clover. It should be spread evenly on the crop, after it has started to grow, on a quiet morning before the dew has dried off.

Concrete Walls.—"Inquirer" asks if concrete made of sand 2 parts, gravel 6 parts, lime 1 part, will stand moisture or fire? Can it be molded into blocks and walls built of these blocks? Is the lime spoken of in this relation in Atwood's "Country Houses" common lime or hydraulic lime?—Concrete made as above will not stand fire; it will do for cellar walls and chimneys, but not for fire-places. It can not be used to mold blocks; that process requires hydraulic cement, which is much stronger than ordinary lime, and sets more rapidly. Atwood's formula as above refers to common lime.

Feed Roots after Milking.—The statement often made in these columns that the disagreeable flavor that comes from feeding turnips and other roots to dairy cattle may be avoided by giving such food only immediately after milking, receives constant and frequent confirmation from our correspondents. In one instance, we hear of three pecks of turnips per day being fed without the least trace of the flavor remaining in the system at milking time, and this not only for a few weeks, but at the end of a whole winter's operations.

Russian Crabs.—"D. M." There are several Russian or Siberian Crab-apples.

The Epizootic.—J. T. Lee, Douglas Co., Ill.—Horses or cattle may take this complaint twice a year, spring and fall, if exposed to cold or damp. It is occasioned by certain conditions of the atmosphere and the weather, and if one horse takes it, all are subject to it, and yet some may escape. It is not considered infectious nor contagious.

A Good Jersey Cow.—At an agricultural exhibition at Starkville, Miss., Mr. W. B. Montgomery's cow was brought out for trial as to her milking capacity in the presence of the judges and of the public, which had expressed itself as very skeptical as to her value. She gave (at her regular interval) over eleven quarts of milk of the richest "Aldernay" quality. This would be very large in our best Jersey herd at the North, and is much more surprising in Mississippi, where until recently it was supposed that clover and the grasses could not be cultivated, and where six quarts a day has probably been a large average for what was called a good cow.

Potash as a Fertilizer.—"R. H. F." Commercial potash is now quoted in the wholesale market at $8.50 per barrel, equal to about $1.70 per 100 pounds. It has been used in composts by dissolving it in water and scattering the solution over the heap, which is probably the safest way to use it.

Powder and Caterpillars.—"E. J. R." writes that he has seen Tent-Caterpillars successfully disposed of by shooting into their nests with small charges of powder. He suggests that for tall trees the gun might be attached to a pole and the trigger pulled by means of a string.—The best way to treat Tent-Caterpillars is to nip them in the bud—or egg.

Encouraging from Texas.—"J. C. R.," Atascosa Co., Texas, writes in a private note to the editor: "Texas is the best country I know for the poor working man. I have now about seventy head of gentle hogs, eight horses, a four-horse wagon, two plows, a horse-hoe cultivator, a mowing machine. Sixty acres under good fence. Will cultivate forty acres this year. Two years ago last December I had nothing of the articles above enumerated, and did not know where to get a cent of cash. I have made all in the last two years. It's true, I have good friends. I intend to plant corn on the 5th of February; cotton the 10th of March. The weather is pleasant, the thermometer about 70° in the shade."

Materials for Mortar.—"S. R. E.," Beaver Co., Pa. The proper proportion for mortar for plastering is one cubic yard or 18 heaped bushels of stone-lime, double that quantity of sand, and three bushels of hair. This quantity will cover 70 (3d inch) yards on lath.

How to Kill Gophers.—"J. H. B.," Woodford Co., Ill., kills gophers by opening a new run and setting a mink-trap therein, covering the hole quite closely with a piece of board, and then making an opening two feet from the trap to let in the light. The gopher comes very soon to close the hole, when, if the trap is set lightly, he is certain to be caught. After a few have been trapped, the rest abandon the location.

Animal Manure.—"W. Van G.," Hudson, N. Y. Scrap-cake from lard-renderers is a valuable manure for the nitrogen it contains. To get the best effect, it should be reduced to powder, or made as fine as possible, and applied near the seed, so that the young plant shall get an early, vigorous growth. By composting with earth it is reduced to a condition of fineness, but much of the nitrogen is said to disappear. The best plan is therefore to apply it directly.

Read the Advertisements.—There are inquiries coming to us daily for information which might be found in the advertising columns. It ought not to be supposed by any means that the contents of those columns are of no value to any one of our readers; on the contrary, every one who desires to be posted in his business should know where the articles he requires are to be procured, and should have this information always at hand. This can be done by reading those columns in which business people announce what they have to dispose of. Before any of our readers take the trouble to write us inquiring about any article, they should carefully look over the pages of advertisements, and in many cases they will discover where and how their wants may be supplied.

Artesian Wells.—"W. Van G.," N. Y. There is no certainty of procuring water by an Artesian well without an experiment. The fact of a boring being made below the level of the bottom of a river or lake is no surety that water will be procured, because there must be a bed of porous rock or gravel existing through which the water percolates; this can only be ascertained by trial or geological knowledge.

Weak Eyes in a Calf.—"C. B. K.," Ludlow, Mass. Animals are often troubled with a watery discharge from the eyes, consequent on cold or exposure in damp or filthy stables. Very often a little burnt alum, blown into the eye through a quill causes a counter-irritation which relieves the inflammation, or a rag wetted with a weak solution of sulphate of zinc hung over the eye will relieve it. Keep the calf in the dark.

Lime and Manure.—"H. N. C.," Somerville, N. J. When lime is spread on a field just previously manured no harm is done. The effect is to cause the stable manure to be more rapidly decomposed, and consequently to act more vigorously on the crop and to be more rapidly exhausted.

Wanted an Estimate.—"A Subscriber" asks how much he should pay for the use of seven cows for one year, he finding the feed and having all the milk.—That depends much on the kind of cows. If they are such as will give an average of 10 quarts of milk a day during the season of nine months, the owner of the cow should be entitled to one half of the profit over the cost of feed. The feed and care of a cow for a year should be worth $50; the milk at 3 cents a quart would be worth $81; half the profit would be $15.50—a fair allowance for each party.

Tobacco Culture as to its Morality.—"L. B. Y.," Meriden, Ct. There can not be the slightest objection to the culture of tobacco in a moral point of view, nor in an agricultural way if the grower uses sufficient caution to prevent loss of fertility to his soil. Morally the growth of tobacco is in the same category as that of tea, coffee, barley for malt, or hops, which are not necessaries of life. Agriculturally its culture is sound, when *on the whole*, the grower is permanently benefited; if he grows a crop or crops at a less profit during a course of years than by other crops it is not a good business; and farmers ought to make close and prospective calculations before they are tempted by seeming present profits to give their land up to it.

Taylor's Cattle Food.—We do not advertise preparations of this kind without being informed of their composition, and the fact that it appeared in our columns is evidence that we thought well of it. Since it was introduced, we have had considerable experience with it, especially in the case of one animal which appeared in a hopeless condition. Some of our best breeders think it useful in preventing abortion, and as it improves the tone of the animal's system this may be to a certain extent true. The food consists of tonics and stomachics ground up with corn; and is in a form that is handy to use, as well as palatable to the animal.

American Rubber Paint.—Of late years several substitutes have been proposed for the ordinary oil paint. These have the advantage, among others, that they are mixed and ready for use. A given quantity—a gallon, for instance—will cover a certain number of square yards, and one has only to measure the surface to be painted, order the proper amount of paint, and put it on at his leisure. One of the successful paints of this kind is made by the American Paint Co., which has been used with satisfaction by some of our associates, and which is probably as good as any similar article now in the market.

Diluted Sulphuric Acid.—"G. P. D.," Delaware Co., Pa. Water charged with sulphuric acid would make a valuable wash for stables if there were any way of saving the liquid manure. Applied to a manure pile it would fix the ammonia which became disengaged from the fermenting mass, and produce a non-volatile salt of ammonia.

Management of Colts.—"F. F.," Blue Hill. Colts sometimes have a hereditary predisposition to founder, and a slight overfeeding with corn-meal or inattention to the general health may induce inflammatory action in the feet, which is known as founder. In such cases the stable floor should be spread with sawdust six inches in depth, kept moist where the fore feet are placed with cold water. Soft, cooling food, as bran-mashes, and plenty of cold water for drink should be given, and cold water freely applied to the feet. The colt should be encouraged to lie down by having a good bed supplied, and not be forced to take exercise which is disagreeable to him. If a moist pasture can be procured, a run at grass would be beneficial. No bleeding needed.

Sowed Corn for Fodder.—"A. P.," Charlotte, who says he has never seen any directions for harvesting fodder corn in the *Agriculturist*, is requested to look again; he will not only find ample and repeated directions for this, but doubtless for many other useful things which he has missed.

Homœopathic Veterinary Practice is a new work published by Boerick & Tafel, of New York and Philadelphia, which describes the treatment under this system of diseases of horses, and all other kinds of domesticated animals. For those who desire to follow this treatment, or for those who desire to learn the proper management and care of animals in health, this book will be found valuable. Price, $5.

Ashes from Spent Tan-Bark.—"J. O. M.," Susquehanna Co., Pa. The ashes from spent tan-bark are worth as much as the average of wood-ashes. If they are mixed with coal-ashes as they often are when burned beneath the boilers of a tannery, their value depends altogether on the proportions in which they are mixed. The refuse matter from a tannery consisting of scrapings and trimmings of hides and lime with some hair is worth $2 a load, which is its usual price.

Potatoes—Early Peas.—"G.," Avon, Ct. It will depend much upon the season whether "Early Rose planted in the middle of July" will mature a crop. If there is the usual midsummer drouth the vines will have a poor chance to grow—no vines no tubers....As to the best early pea, a good strain of Daniel O'Rourke is perhaps as reliable as any. This pea has any number of names, each dealer calling it his particular "Extra Early."

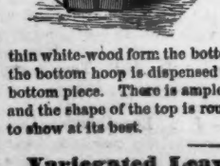
Proper Age for Breeding.—"C. C. McD.," Battle Creek, Mich. A mare at two years old is too young to breed. She should be four years old. A Jersey heifer may be allowed to breed after she is a year old, but generally heifers of other races should be at least two years old. Jersey cattle are more precocious in this respect than others, and yet it is a question if it would not be better not to breed even from these so early.

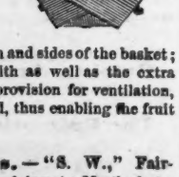
Chopped Oats and Corn.—"G. C. A.," Marion Co., Oregon. If it were not for the amount of husk, oats would be about equal to corn as feed, weight to weight; but nearly one half ($^{14}/_{32}$) of a bushel of oats is husk. In estimating the comparative value of chopped oats and corn this must be taken into account.

St. Vitus Dance.—A "New Subscriber," Washington, N. C., who probably is not aware that all letters should be signed with real name.—St. Vitus dance is a nervous disease which generally follows distemper in young dogs. It consists in a twitching, more or less violently, of the muscles of a limb, or sometimes of the whole body, and not infrequently the animal dies miserably. The dog when affected slightly generally recovers in time if his general health is kept up. The food should therefore be of the most nutritious and digestible—rice, oatmeal, or bread, boiled in beef-tea strained from all bone or meat, should be given in moderate quantities, and overfeeding and disturbing exercise avoided.

Manure-Eating Cows.—"J. F. H.," Oswego Co., N. Y. Almost all cows during the winter season will eat the litter from the horse stables if allowed to do so, even though they may be fed in the most abundant manner. We never knew any harm to result from the practice. Hogs and fowls in the same way will consume the droppings of cattle, and fowls those of hogs, and hogs those of fowls. It may be one of the economies of nature that nothing should be lost or useless. In parts of Sweden the dairy cows are regularly given the droppings of the horses as feed; but the practice is considered by some there as repulsive, as it is very naturally considered here.

The Paragon Basket.—Mr. J. R. Helfrich has shown us samples of a berry basket, which he and other commission men think very superior. The two engravings show how it is made. Three strips of





thin white-wood form the bottom and sides of the basket; the bottom hoop is dispensed with as well as the extra bottom piece. There is ample provision for ventilation, and the shape of the top is round, thus enabling the fruit to show at its best.

Variegated Leaves.—"S. W.," Fairhaven, Minn. The plant you send is not a Myrtle but a species of Spider-wort. *Tradescantia repens vittata.* We can not tell *why* the leaves of this and a hundred other plants are variegated—wish we could.

Galvanized Iron Pipe.—The term "Galvanized" is applied to iron covered with a coating of zinc. The zinc protects the iron from being acted upon by water, but the zinc itself is acted upon and dissolved. The soluble salts of zinc are poisonous; hence galvanized iron pipe should not be used for conveying, nor galvanized tanks for storing water that is to be used for drinking and cooking.

Bermuda Coffee and Other Products.

"A. O." writes, March 31st. "I inclose a grain or two of Bermuda Coffee, which grows spontaneously in this parish at Walsingham and Paynter's Vale. I think coffee could be cultivated more extensively here. It grows quickly and bears well, and its quality is equal to that of Java. At any rate, it could be grown in sufficient quantity for our Island demand. "Indigo also grows wild, and likewise other valuable plants, medicinal chiefly.

"Owing to the severity of this past winter, our three staple productions, onions, tomatoes, and potatoes, are late in the market, but during the month of April larger shipments will be made. The Trophy Tomato, if good, does well—is the finest fruit produced, and sells for highest price. Early Rose potatoes meet with ready sale for the home market, are first-class eating potatoes, are dug usually during February and March.

"Some of our people are prejudiced against the White Onion, and by legislative enactment endeavor to prevent the importation of White-Onion seed—and granted $1000 to buy it up, and have destroyed what was on hand. Now this is an error, the white onion by some being preferred. This onion is what you term the yellow onion, not the *silver* skin variety."—The coffee sent was very fine in appearance, but it is a plant the quality of which is largely determined by soil and climate, and only actual experience can determine the practicability of its cultivation. We thank our correspondent for his good words in regard to the *Agriculturist*, and shall be glad to hear from him again.

Catalogues Received.

The following catalogues have been received since our last list:

Nurserymen.—W. C. Strong, Brighton, Mass....J. W. Coburn & Co., East Chester, N. Y....F. Trowbridge, New Haven, Ct., Fruit and Ornamental Trees....J. A. Vaughn, Carver, Mass.....Geo. Pinney, Sturgeon Bay, Wis., Evergreen and Forest Trees....F. K. Phœnix, Bloomington, Ill.

Florists.—Geo. W. Campbell, Delaware, Ohio....L. B. Case, Richmond, Ind ...W. F. Porter, Warren, Ohio.... F. K. Phœnix, Bloomington, Ill.

Seeds.—Wm. Newton, Henrietta, N. Y....L. D. Scot & Co., Huron, Ohio, Seed Potatoes.

Fowls.—N. B. Perkins, Salem, Mass.

Compton's Surprise Potato and other Novelties

"T. F.," Cheshire Co., N. H., writes that he thinks that instead of giving a notice of Compton's Surprise Potato, or allowing the advertisement of it to appear, we ought to class it among the humbugs. It is the business of an editor to let his readers know what is going on in the world. When he gives the authority for a statement that seems extraordinary, he gives his readers an opportunity to judge whether they will believe it or not. We go upon the principle that our readers are capable of judging for themselves in such matters. This Mr. Compton appears to be perfectly sincere in his statement, and his neighbors testify to his truthfulness. Which would T. F., as a long-time reader, have us do? Tell him that there is a potato for which such claims are made, giving him our authority for the statement, and distinctly stating that we know nothing of it of our own knowledge, or ignore it altogether? We do not see that any one is obliged to buy the potato unless they choose to risk their money in trying an experiment. Had we waited until we had tried the potato, we should be largely blamed, provided it turned out valuable, for keeping all knowledge away from our readers. As to showing it up as a humbug, we are very careful not to call a thing a humbug unless we feel able to convince a jury that it is so. We have a distinct recollection of being taken to task for publishing what we did in favor of the Early Rose potato when it was sold at a higher price. Yet the introduction of that has been worth uncounted millions to the country. It is our intention to keep our readers advised with regard to novelties in agriculture and horticulture. With regard to things that are untested by us, we give the source of our information, and leave the matter until we can record the results of our own experience.

Farmers and Railroads.

The enormous taxes levied on farmers by railroad companies in the shape of excessive freights, have at last become heavier than can be borne. The value of produce in the barns and granaries of farmers in the Western States has become so reduced that it is with difficulty the producers can support themselves. The low prices ruling during the present season have brought the matter to a crisis, and the farmers of Illinois have met in Convention to discuss the means for providing a substantial remedy. A State Farmers' Association has been formed which met on the 2d of April at Springfield; delegates from all parts of the State being present. A series of resolutions were presented and adopted, to the effect that railroads should be considered public highways, and as such should be brought under the control of the legislature, and made to serve the public convenience: that a general railroad law should be enacted by the legislature regulating the carriage of freights and passengers at reasonable rates, and that no unjust increase of the nominal capital of the railroad companies should be allowed: that railroad companies should be compelled to receive and forward all the freights on cars which may be offered to them either at stations on their roads, or at crossings made by other roads, with some other similar provisions. It was evident from the tone of the speeches made at the meeting that farmers are thoroughly aroused to the necessity of battling for their interests, if not for their positive existence, against the exorbitant demands of the railroad companies, and it is likely that this movement in Illinois will be seconded by a general one throughout the West. Of course, the railroad men deny a large share of the charges made against them. We hope that the matter may now be thoroughly ventilated, and the blame for the present depressed condition of agriculture fixed where it belongs; then such legal remedies should be applied as will meet the case. The few injudicious persons who threaten a resort to violence only injure their cause.

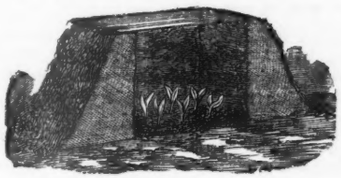
To Boys and Girls.

Children, there is trouble in our menageric. The animals have not got to fighting, but what is about as bad, some are in the wrong cages. Never mind now whose fault it is—it is not mine—but just turn to pages 187 and 188 and make these corrections. The Common Seal is the lower *left* hand animal. The Sea-Elephant is in the upper *right* hand corner, and at the right of the Harp-Seal instead of the left as stated in the description. The Sea-Leopard is directly under the Sea-Elephant, and the Sea-Lion is at the upper *left* hand corner. What a bother these slippery fellows are! but if you will note these changes you will have them all right. Don't forget the Menagerie prizes. By the way, here is something for young gardeners that was crowded out of the regular pages, and as it will be of no use another month, we will take a little space from the old folks and put it here.

THE DOCTOR.

A Hint for Young Gardeners.

In the spring almost every boy and girl likes to make a garden. Some are content with making it and seeing the seeds come up, and then care nothing more about it, while others will stick to it all summer. Most young gardeners if asked what they would best like to grow will say "melons." A very good choice, we think, for melons are excellent, and none taste so good as those we



EARTH-HOUSE.

grow ourselves. Mr. J. L. Hyde, of Connecticut, who sent you a bird-house last year, sends now an account of what he calls a "dirt-house." He says:

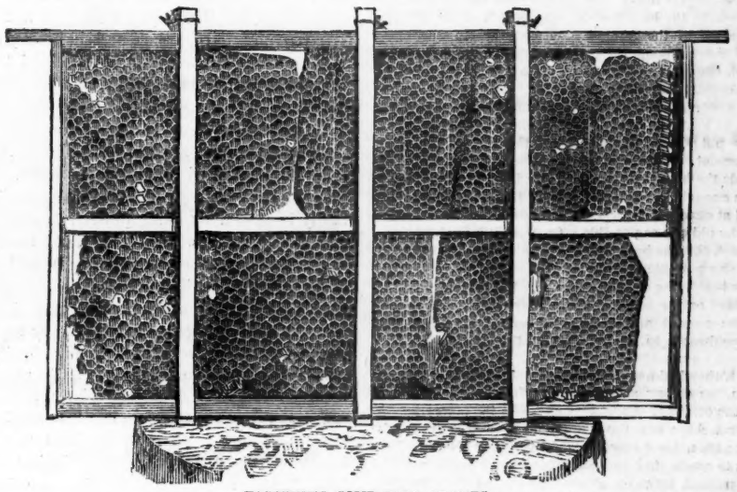
"Any boy can make it that knows how to cover his feet with earth and make houses in this way. You may call it a hot-bed, forcing-frame, or anything else that you choose. The first thing to do is to dig a cellar about 10 × 12 inches across and six inches deep, and fill it with manure and earth well mixed. Now take a box without top or bottom, about 8 × 10 inches across and six inches high; place it over the cellar or foundation for the house, and bank the sides with damp earth; spat it down firm, and then carefully remove the box by lifting it out so as to leave the earth-walls standing, and make as many more as you choose in the same way.

"If you are careful, you will have the house all finished except the roof; but before you put that on you should plant some melon seeds, or any other seeds you choose. Now lay on a 10 × 12 glass for the roof—fix it on tight, so no air can get in. When the seeds make their appearance above ground, give them some air by removing a part of the south side of your house, or make a door and window in the back. Make your house in a warm part of the garden about the first of May. Let your plants have air as soon as you can see them. If you need to shade the plants, it can be done by sprinkling some earth upon the glass. In this way the plants will be kept from the attacks of 'bugs' while young, and being kept warm in cool nights will get such a start that they will be far ahead of those from seeds planted in the open ground."

Bee Notes—Advice to Beginners.

BY M. QUINBY.

Bees should be looked at once a week from April 1st to June 15th to ascertain the quantity of sealed honey on hand. It will now have to be guessed at. Thrifty prosperous stocks, should not at this time, (May 1st.) have more than 10 lbs, nor less than 6. Should they, at any time, have more or less and all unsealed, it would pay to feed at once a few ounces every day. And if out of honey they must be fed, or they will starve. The cheapest feed that we have found is a syrup made of 3 lbs of white coffee sugar, and one quart of water. The most convenient and safest feeder is patented. It can be set over a hole in the top or on the frames, and the feed is taken from the bottom of it without exposure to outside bees. When fed by a vessel open at the top, it should be set on the top of the hive, and holes open for communication. After syrup is in the dish, sprinkle on it a thin coating of cut straw or fine shavings, to keep the bees from drowning or sticking fast. Honey can be used instead. Scatter a few drops outside the dish and down through the hole, to show the bees the way. Pieces of comb containing honey may be simply laid on the top of the hive. Over the whole set a box to cover all perfectly tight, to prevent any outside bees from getting a particle or even smelling it. Bees scent honey farther than syrup, and will try harder to get it.



FASTENING COMB INTO FRAMES.

To ascertain if a box-hive has sealed honey, it is necessary to turn it over in the morning—do it carefully without a jar—blow in smoke till the bees run out of the way, and should there be any sealed, it may be best seen when the sun shines clearly. For this purpose—looking inside—and many others, the movable comb-hive has so many advantages over the box-hive, that I hope every one having the box-hive is ready and willing to undertake transferring. April and early in May usually are the best times. Other seasons may do. It is hoped that every one having bees, good or bad, who expects to get anything from them, has looked closely enough to become acquainted, and lose the horrid dread of stings, and get the habit of doing things at the right time. Movable comb-hives should be made so as to accommodate the swarm, large or small, and hold surplus boxes for one or two hundred lbs; or if disposed to extract the honey, double the usual amount of combs may be inserted. The frames for transferring should be flat on the under side of top instead of having an angle as where comb is to be built.

Get the empty hive ready in every particular. The frames should have a piece across the bottom, that will be one fourth inch from the bottom board. Measure the depth of frame. If it is 12 inches, get out splints 12 1/2 inches long, one fourth inch or less, by one fourth or a little more.

Fifty or more will be wanted for one hive. Get a dish of water for washing off any honey that may stick to the hands, and wetting any knife that you use. Look over the whole ground in imagination, and get everything that you may possibly need before commencing. Go over the whole thing two or three times, when to do it, and how it is to be done, what tools are wanted, and how they are to be used. This will prevent hurrying unduly, as well as losing time to procure the conveniences to work with at the time. Saw or notch a quarter inch from the end of the splints, so that a bit of twine that is to tie the ends together, will not slip off. The twine should be four or five inches long. Tie one end of the splint firmly, one inch from it tie another knot, then lay in another splint and tie another knot over it, and they will be just one inch apart. Tie a twine on one of the splints at the other end to have it ready for the second knot when the comb is put in. Very fine annealed wire is preferable to twine, when it can be procured. Simply twisting it holds better than a knot, and is quicker done. If but one hive is to be transferred and no neighboring bees are near to interfere by robbing, do it out of door right by the stand, near the middle of the day, or when warm enough not to chill the brood; or if more than one, when the day is likely to be warm enough for them to fly, it should be done in a room made warm enough to prevent chilling the brood. Exclude the light, except from one window. The hive to receive the bees should set directly under it. The hive to be transferred should be closed and brought in before they fly in the morning. Those with straight combs are most easily worked. Turn the hive bottom up, open the entrance, and blow in some smoke. The bees run among the combs and fill themselves with honey. Take off the bottom, shake the bees on the combs, and smoke them a little more. By this time they lose all disposition to sting, and are perfectly bewildered. You can do many things in the house that they would not allow you to do out of doors. There is really less danger of stings in the house in doing it than in hiving bees when they swarm. We use no veil, and pay no attention to the bees themselves except to keep from mashing or pinching. They gather in little bunches, and a few may fly and get on the window. If need be, put on the veil. Set over the hive an empty one or a box, that has been made comfortably warm inside. Drive out the bees by pounding the lower hive lightly and rapidly ten minutes with a stick or light hammer, when most of the bees will be in the upper hive. Set it off. The few scattering bees left will not make the first attempt to sting. The next thing is to cut the combs loose from the side of the hive. For this you want a thin, long knife an inch or more in width, and two feet long. As it does not require the best tempered edge, a piece of hoop iron will make it. Grind off the end like a carpenter's chisel. Crowd this down between the edge of the comb and side of the hive; the straight, flat side next the hive, the beveled side next the comb, which will crowd it close the whole length. Saw off the cross sticks. Now take off the side by prying or drawing the nails, or splitting it in pieces with an axe or chisel. Take off two sides or more if necessary to make

it convenient to take out the combs. Then with a sharp, thin knife cut loose the first comb, loosen from the cross sticks, and lay it on a table carefully that has been covered with several thicknesses of cloth. Lay over it the frame, and trim it to fit. A piece of the second comb may be needed to fill it out. Now let an assistant raise the frame and comb, while you slip under the splints in about three or four places to hold it to the best advantage. Let the number of pieces of comb decide the number of splints. Bring the other splints that are already tied at one end over the upper side, and tie at the other end, and it will present the appearance shown in the engraving on preceding page, except the center piece—which we leave out now—generally. Put this in the new hive, and transfer the next in the same way. See that the brood is in about the same relative position that it was before, and near the center and not scattered, that the cluster of bees may cover all. Put the splints over as little of the brood as possible. Cut off all the drone comb and keep it out entirely, unless it contains honey that is necessary for the bees at this season, when it should be by itself, to be taken out afterwards. The spaces of an inch diameter should be filled by the little pieces of worker comb cut off the corners. Spaces less than an inch will not do much harm if filled with drone comb. It will be likely to satisfy the bees. If there is comb enough to fill six or seven of these frames 11×16 inches it will do well enough till after midsummer, when you use surplus boxes. When you have the frames all in place shake the bees that have been driven out directly on the top of the frames, when they will immediately creep down among the combs. With a goose quill or fowl's wing, sweep the few off the window into the hive, and any that may stick around the hive. Put over the frames several thicknesses of old newspaper or any old cloth, to keep the bees down. If the hive is not full of combs put a board next them just the size of frame for the present. If there is no honey smeared or running outside the hive to attract robbing bees, and the day is warm enough for them to fly, take the new hive to the stand at once. Have the entrance as near and as much like the old one as possible. Contract it for a short time, at least, till the bees find they are home and quieted. Leave no possible opening large enough for robbers to get in beside the regular entrance. If any bees were left scattered on the window where they were transferred, it may be opened and every one brushed off, when they will go directly to the hive. After the first day or two, they are no more likely to be attacked by robbing bees than if they had not been transferred. If the weather is warm, the colony strong and getting honey, they will seal the combs to the frames, and join the pieces together in a week, when the splints can be removed. If the combs are not fast leave the splints until they are. Bees seem to renew their industry after being transferred, and will smooth up any mutilation of combs much quicker than any one not acquainted with the matter would suppose. Those who suppose that bees transferred to movable combs will not do enough better to pay for all the trouble just described, should just consider some points in their natural history. It is so ordered by the Creator that every isolated colony will provide all the drones required, and, in doing so, will rear thousands more than is really needed. Nature provides for isolated colonies. When a man brings fifty or a hundred into one apiary, one or two colonies with the drone comb that they naturally make will furnish enough for all. We have found out that eggs laid by a fertile queen in drone cells invariably produce drones, that the same eggs laid in worker cells produce workers. Now if there are no drone cells, the worker cells must receive the eggs, and we get profitable producers instead of idle consumers. The gain here we consider enough in one season to pay all the expense of transferring; and besides this, we are sure to get all straight combs, which the bees do not always build.

The next best time for transferring is three weeks after they swarm. Those who have not the time, or have not the energy to do it now, had better determine to do it then. I will endeavor to describe a hive before that time, as well as surplus boxes.

Ogden Farm Papers.—No. 39.

"Chop un over with a heavy hoe and dung him; dang 'em, that'll bring 'im round." This is the advice given by some English laborers, whose advice their master asked about the treatment of a bit of heavy clay land that had been packed by carts until it was as hard as a thrashing-floor. It was given in rude English, but it is full of good sense, as the proprietor found in this case. He reasoned thus: "We'll have a virgin soil in this old clay-pit; we'll chop him over and dung him, and perhaps the mangels won't know the difference." And they did not. He says they only rasped off some blue clay from the surface; then chopped out the drills after a rain when the ground was soft, applied the manure, and planted the seed. As the mangels could not bury themselves in this hard clay, they had to sit on the surface (on exhibition), but their roots found their way to the manure, and they grew as though they *had* been in virgin land, and they made a fine crop of very handsome roots.

I know that this is contrary to our preconceived notions, and contrary to much that I have myself written. At the same time, it won't do to be bigots, whatever we are, and there is a lesson in this case which we may as well consider. It is a perfectly well authenticated case, and it shows the power of manure, when applied to the surface of a very hard clay soil, to make as good a crop as it would have done had the soil been deeply plowed. How deep plowing would have affected the case is not known, for the experiment was not tried. The presumption is that, had it been possible in such a soil, it would not have helped the result, for it would have brought up a perfectly crude earth, that had lain for centuries below the shallow reach of atmospheric influences. No general conclusion against sufficient cultivation is to be argued from this instance. Land that is fertile, for a greater or less depth, is certainly benefited by being plowed *to that depth*, but there is much hard clay land that is not fertile for any considerable depth, and this I think is injured—if not permanently, at least for a very long time—by having the little fertility it possesses (always at the very top) covered over by (or very largely mixed with) the crude clay of the subsoil. With regard to some of the land at Ogden Farm, this is unquestionably the case. I have several times spoken of one section of the farm where we brought to the surface about *four* inches of cold, blue-clay subsoil, which had never seen the light before. We manured it, froze it, thawed it, fallowed it, and did to it everything that promised relief, but all to so little purpose that I am confident we have lost in interest, manure, and seed over $100 per acre on it. Time has at last told on it, and so have the roots of the scanty crops it has grown, but even now the best we can say of it is that it has a fair catch of grass, which will need considerable manure to bring it to first-rate condition. Had it been plowed five inches deep (instead of ten) five years ago, as good a stand of grass could have been had the very first year as we now have. It is questionable how much good, *in the long run*, the deep cultivation may have done. Some, no doubt, but in such a soil probably less than many would suppose. Now let us see how the account stands. There are about eight acres of the land which cost, with the underdraining, $200 per acre; so the interest account amounts to $560. The labor has been about returned in crops, certainly not more. Manure and seeds can not have cost less than $10 an acre per annum, probably much more—and this makes $400. Total, $960. Much of the manure lies in the land for future use, but I think my estimate is a fair one—that we have *lost* $100 an acre by too deep plowing.

Are we to reason from this that deep plowing is a mistake? Who can tell? Facts are stubborn, and this is by no means the only fact tending in the same direction. Still, there are many authentic instances of the eminent success of deep plowing. The character of the soil has very much to do with the question. When this is good for a considerable depth, it *may* pay to bring up a little of a mellow subsoil to put with it. At the same time, it is very likely that what is brought up neutralizes a proportionate quantity of manure which would otherwise have gone to the formation of immediate crops. Having started my farming life with strong convictions in favor of deep plowing, it is not easy to see them gradually set aside, and it would even now be unfair to say that they are set aside. Nevertheless, I must confess that the older I grow the less I *know*, and the more am I inclined to heed the counsel of "Universal Custom"—that best of teachers, if we know how rightly to apply its lessons. There is room enough left, in all conscience, to find fault with the practices of common farmers, but they have established some laws that it will be best to follow until we can find better ones. One of these is, and it is a very important one, that it *pays* best to keep the most fertile part of the soil at the top, and to put the manure on top of that, especially for grass-land—and some day we shall know better than we now do the scientific reason why. That there is a scientific reason for every right or wrong in farming is totally and entirely certain. Until we know more about it, let us "chop un over with a heavy hoe (or plow shallow), and dung 'im," and trust that "that'll bring 'im round—dang 'em."

It was not without anxiety that I returned to the farm after an absence of over three months. Any farmer who has left his place for such a period will appreciate my relief on finding everything in substantially as good condition as it probably would have been had I stayed at home. That is to say, there had been no serious mishaps that my presence could have obviated; but he will appreciate the further fact that there was evidence in every department of the effect of *low pressure*. Everything had been run at a sort of "safety" speed, and lacked the *fillip* that successful farming needs. For instance, the stock never looked better, and the feed bills could not have been lower consistently with their being kept in fine condition. But at the point of fine condition the economical manager, who was anxious to keep down expenses while keeping up appearances, had stopped. The nutriment needed for vigorous health had been given: the extra amount needed to keep up a vigorous flow of milk had been withheld. The consequence was that spigot-saving in the meal-bin had resulted in rather too much wasting at the bung of interest and general expenses. Every dollar spent for grain, beyond what had been spent, would probably have resulted in two dollars profit. However, any farmer who abandons his farm and goes across the Atlantic, leaving it in the hands of a hired man, may well congratulate himself if, on his return, the only ground he finds for complaint is such conscientious guarding of his outlays as characterized my worthy Haubrich.

I ought not to leave this subject without saying that, although the product of butter was less than I had expected, it rarely fell below 60 lbs. per week from an average of 20 cows, several of which aborted last year, and nearly all of which are to calve this spring.

Aborted! There's the rub. Of all the mysterious accompaniments of cattle breeding, this is the most mysterious and the most deplor-

able. I have racked my brain incessantly to learn the cause, and to devise some treatment that will serve as a preventive, but thus far neither cause nor preventive have been found. We have not as yet had very many cases, but one case, with a thorough-bred cow valued at a very high price, is bad enough. We not only lose the calf, but we also lose (for the time, at least) much of the value of the dam. In the case of common cows, one that has aborted may be at once dried off and fattened for the butcher, but with thorough-bred ones this can not be done. We have to do our best to make them carry their next calves to maturity. If they once do this they are safe. Thus far, I have had no second abortion by the same animal, and I have tried to avoid it by adopting the plan suggested by Mr. C. L. Sharpless; which is to keep the cow from the bull until the November following the abortion, or, if she has aborted later than July, until the *second* November following. Perhaps even December would be better. The object is to have the fœtus too young for the usual period of slinking (say less than seven months old) when the cows are turned out to grass. They should then be put on good pasture, no unruly or quarrelsome animals should be allowed among them, and not too many should be put together. If, with all these precautions, they abort again, they may as well be fattened at once—no matter how valuable they may have been.

One thing seems clear, whatever may be the original cause of the disease, it is contagious, and the closest watch should be placed over the herd, whether in the stable or in the field, to see that any cow that shows indications of calving may be at once removed out of sight and hearing and smell of the rest of the herd. It would even be prudent not to allow a cow to calve at her full period in the presence of the others. Whether the birth has been premature or not, the dead calf and the after-birth should be buried in some place remote from them. No cow that has aborted should be returned to the same stable with pregnant ones until at least a month after the accident, for there is some unknown influence emanating from them which spreads the contagion.

One of our two-year-old heifers, in calf for the first time, kept on a farm a mile away, and fed only on dry feed, has just aborted in her 8th month. In her case there was no possibility of the trouble having arisen in contagion—and unless there was some ergotized grass in her hay, it is impossible to attribute her condition to anything she ate.

Our dairy arrangements have been entirely successful and satisfactory throughout the whole winter, and I do not longer hesitate to advise any farmer who is considering the improvement of his milk-house, and of his system of setting milk for cream to adopt the same plan that we are using. I am confident it is better for both winter and summer than any other now known. The "deep-can" part of the system has been sufficiently described and illustrated in previous numbers of the *Agriculturist*, and I will, at an early day, prepare diagrams of the heating apparatus, which enables us to follow up the same system throughout the winter, and with better results than I have before been able to secure.

One of our unavoidable mishaps was the serious breaking of the windmill in the depth of winter. This showed us the value of a mechanical power for raising water. The tank in the milk-house had to be filled by hand, from a well near by, often enough to keep the water sweet. This was not so very serious, but to haul water from a brook half a mile away to water 60 head of stock was so, and I hope we may never again have such an inordinate labor put upon us. Bad as it was, it was better than to have turned the cattle out of their warm quarters to go that distance in the cold.

The field laid down to grass in 1871 looks very well. We left upon it last fall a long *fog* (aftermath for winter cover), and the grass is now—April 3d—shooting strongly. As soon as the ground is well settled we shall give it a dressing of about 150 lbs. per acre of the Manhattan Company's Phosphatic Blood Guano—to be applied during damp or falling weather, and after the first cutting it will receive about one ton per acre of Fish Guano. Something also after the second cutting. During the winter, some spots on which the grass was thin were dressed with horse manure from the sheds, and this will be dragged down with a chain or a Thomas harrow.

The Jersey Cow at Home.

BY GEORGE E. WARING, JR., OF OGDEN FARM.

I have just made a visit of a week to the Island of Jersey, and I have seen the Jersey cow on her native heath.

The farmers of Jersey have learned how to turn her to even more satisfactory profit than we have. That is to say, where they keep cows exclusively for the dairy, they achieve a better result than any one in America with whose dairy I am acquainted. The great fertility of their soil gives them one advantage, and the mildness and uniformity of their climate another; but still more is due to the enormous extent to which they feed roots. Hay seems to form an insignificant part of their winter food. They use straw much more largely, and have a fair bite of grass all the winter through. They depend very much on a plentiful supply of turnips and parsnips. Indeed, so far as I could judge, these roots are the sheet-anchor of Jersey dairy-farming. The farms are small, rarely, I think, exceeding 40 acres, and very often not over the half of that. The team force of each farmer is very small, but they club together for what is called "the big plow," and do each other's plowing, on a social plan similar to our "corn-huskings." If root-culture is their sheet-anchor, deep plowing gives them good anchorage. When land is to be prepared for a crop of parsnips, it is trench-plowed, and completely reversed, to a depth of fully 15 inches (and often 18 inches), and then such dressings of manure are used as would do credit to a market-gardener. In this way, a small farm is made to carry a large stock, the large stock furnishes manure for increasing production, and the cows partake of the generous richness of the soil and give a rich and abundant yield themselves.

This remark applies more strictly to the older cows. A more magnificent lot of motherly, big-bellied, big-uddered, rich-skinned cows can nowhere be found than could be collected by the hundred in Jersey. They are of the race that has made the reputation of this famous breed. I do not exaggerate when I say that I firmly believe that if the present fashion prevails this race will soon become extinct. A few years ago these cattle were bred solely for butter. Color and form were scarcely thought of. The result was a class of cattle that the world has never equaled for the dairy simply. Then there arose two influences which have done some harm and will do much more.

1. The desire to convert the *form* of the animal to the standard which has been cultivated in England by the Shorthorn. I was shown the prize bull of 1872. He was a miniature Shorthorn, much fatter than a butter-dairy bull should ever be. Once give the breed the tendency to lay up fat in its flesh, and you may bid good-by to fat in the milk; as the one tendency increases, the other must decrease. I would as soon think to breed beef-stock by using a raw-boned, deep-flanked dairy bull, as to breed butter stock by using one who showed a tendency to lay on fat in his carcass. Of course, no perceptible harm will come of using such a bull for a single cross, but the longer the process is continued, the more fixed will the pernicious tendency become. Further evidence that "fat" is being too much cultivated is to be found in the fact that I was not shown a single cow in what I considered the right state of flesh for milk, whose owner did not apologize for her poor condition. Several farmers said they would not exhibit their cows at the June exhibitions, because they would have no chance for a prize unless they were fatter than it was safe to have them for summer calving. It will be hard to combat this error, for the Jerseyman is a very loyal Englishman, and if fat cattle are in fashion in England, lean ones will not be in Jersey. Yet it would be well if we could, in some way, to induce the owners of this breed at its fountain-head to return (so far as the question of fat is concerned) to the standard of the old stock that we imported fifteen years ago, and that is still well represented among the older cows in Jersey. In the mean time, let not the mote in our own eye grow to a beam. We are not, ourselves, entirely free from the mania for "form." A straight rump *is* pretty, and it is even very desirable, but before we dispose of a heifer with a sloping rump, let us be very sure what she carries below it. We may lose an udder that would have made the fortune of our herd. Above all, let us beware of *fat*. We want a blooming condition, and flesh enough for vigorous health, but whatever is more than this cometh of an evil tendency to rob the milk of its cream.

2. Much more important than this desire for fine form, is the fancy for color. It is playing the very mischief with the breed, and no one knows it better than the very farmers who are catering to it. They are (and not quite unconsciously) killing the goose that is laying their golden eggs. Of the best fifty cows that I saw in Jersey, not five were of the solid gray color (black points, etc.), fully twenty-five of them had white enough to condemn them in the "fancy" market, and nearly all had what would be considered an objectionable amount. Every farmer with whom I spoke sneered at the idea that solid color was an advantage, but they all said they must breed for their market. They all confessed that in so breeding they were marching on the direct road to inferior milking. One said, "I keep 6 cows, 3 good ones for the kitchen, and 3 gray ones to sell calves from." But even this will not save him. Ten years hence he may not find, in all Jersey, a really good bull to breed from. I did not see one bull-calf being raised that had not been selected *solely* for its color—which means that in a few generations of neglect the dairy quality must run itself out. Neither did I happen to ask after the calf of any superb milker without learn-

ing that if a bull it had been killed because it had white upon it. In not a single case did the farmer deny that such a course is dangerous to the future prospects of the breed, but—"It is the color that sells them, and we must breed for our market."

How does this interest us? Most vitally. We are very important customers of the Jersey farmers, and we have done much to foster the fallacy. Let us do what we can to induce a return to the juster standard—even of beauty—under which the reputation of the breed, for the lawn as well as for the dairy, was founded.

If I owe an explanation for such endless harping on the single string of "color," it is that the more I consider the subject, the more important does it seem. This may well be a *secondary* object in breeding, but the question of dairy quality should always be first regarded.

Setting aside his errors in the matters of form and color, the Jersey farmer is a good farmer, and a good dairyman. And he *has* a good breed of cattle and no mistake. Good and beautiful, and lovable. Always tethered among the apple-trees, or in the little meadows, constantly handled, and talked to, and made much of, their dispositions have been sweetened and quieted through long generations of gentle care; and their mellow, mild eyes reflect a serenity and peace of mind that betoken all their ancestral ease and comfort. Looking at them with Darwin's "survival of the fittest" in mind, one would almost say that their beauty had grown by long cultivation to suit the charming lanes and hedges from and through which the traveler sees them. Curiously enough, I was able to get few statistics. "Rule of thumb" seems to be the rule in vogue. However, I saw cows milked, I saw milk skimmed, and I saw the butter that had been made from a certain number of cows. With fair opportunity for observation in various places and at various times, I concluded that the intense high farming and strong-feeding of Jersey, together with the almost perennial green bite out of doors, give results that we rarely attain where more than two or three cows are kept together. Yet I think that we have in America quite as good Jersey cows as they have in Jersey, and plenty of them.

In Jersey, the larger herds range from 6 or 8 to 25 or 30 milking animals. There are altogether over 12,000 head of horned cattle (all of the one breed), or about 1 to every 3 acres of the whole island, probably 1 to every 2 acres of the agricultural land. When it is further considered that there are over half a million bushels of potatoes (and lots of other products) exported annually, we see evidences of a thoroughness of cultivation which is worthy of our study. The cow plays a very large part in the economy of nearly every farm, and she aids very largely in securing to the Jersey farmer a degree of comfort and an independence that I have seen equaled nowhere else in Europe—nor is it equaled among farmers of the same class in America.

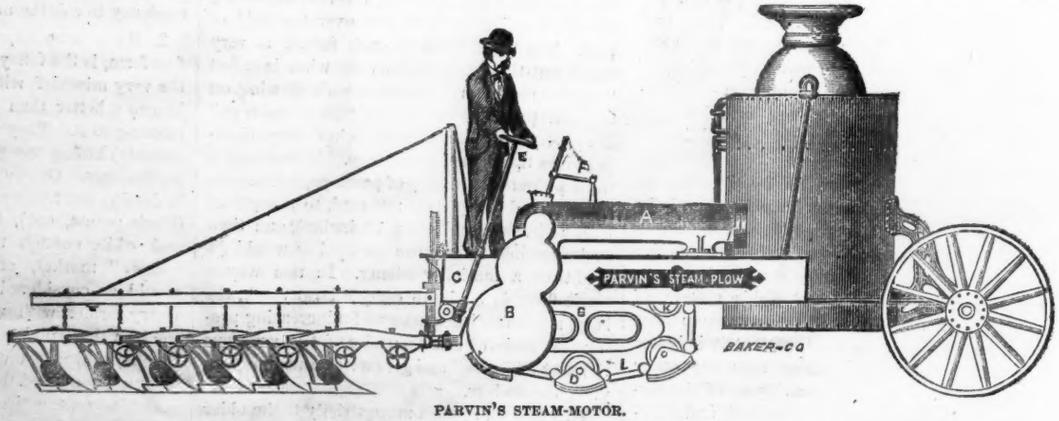
GILCREST'S FLOOD-FENCE.

A New Flood-Fence.

When fences cross streams or bottom lands that are liable to be flooded during a rise in the river, it is desirable to have self-acting arrangements which will present but little obstacle to the passage of the increased body of water, and will not be demolished by drift-wood and other matters carried down by the flood. Several fences have been contrived for such situations, intended to present a sufficient barrier to animals at low water, and so contrived that when the stream was high portions or whole sections would float. A flood-fence invented and patented by Mr. R. S. Gilcrest, of Ohio, differs from any other we have seen. The engraving shows its construction and manner of working. Posts are planted at the proper distances, as many on either side of the stream as may be necessary. A strong wire cord passes through the ends of the posts at a point above high-water mark. The palings are suspended to this wire cord by means of cleats, which form the hinges, and also preserve the proper spaces between the palings. The palings vary in length to suit the inequalities of the surface of the ground. The lower ends of the palings enter openings in a string-board. These string-boards rest in notches formed on the posts, so that they are above the water at its ordinary stages, and the fence is firm and substantial. When the water rises, the string-board is floated out of its notches and carried clear of the palings. The engraving shows one section of the fence adapting itself to a rise in the stream. Each of the palings is now free to move upon the wire without reference to the others, thus allowing drift-wood, ice, etc., to pass without hindrance. Each section opens itself as soon as the rising water floats the string-piece. The suspension wire shown in the engraving is only used when the span is of unusual length. The string-board is secured by a cord or chain, so that it may be recovered when the water subsides; it is replaced by hand. We are informed that this fence has been thoroughly tested, and that its cost does not much exceed that of an ordinary fence.

Parvin's Steam-Motor.

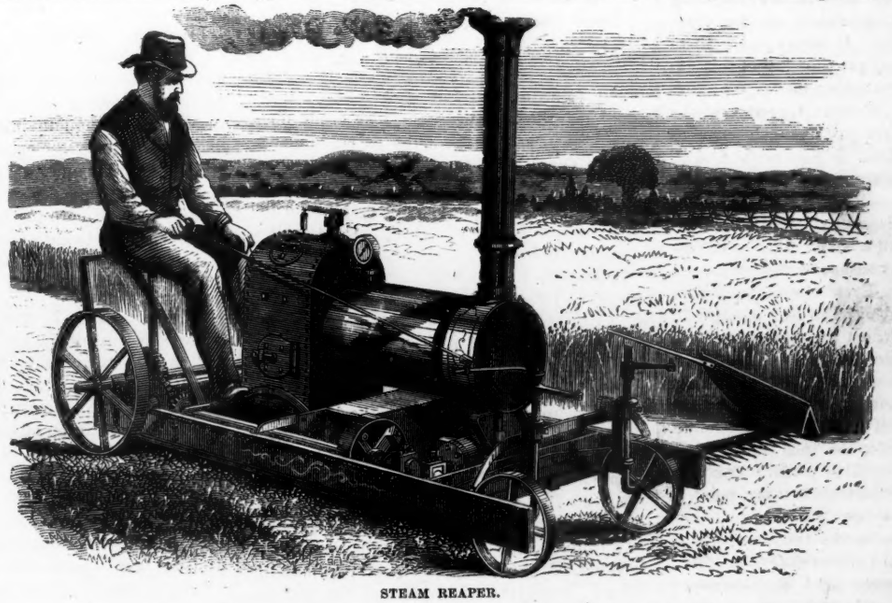
All who have given any thought to the subject feel convinced that American ingenuity will yet devise some means by which steam can be profitably used in plowing. The successful steam-plows in England are drawn by stationary engines, while the American attempts have been mainly directed to producing a locomotive power. As an indication of what is being done, we give an engraving of Parvin's Steam-Motor with plows attached. It will be seen that the machine carries a movable track, and it has been thought that this will obviate the great difficulty heretofore experienced from the sinking of the wheels in the soft soil. Trials of an imperfect machine were made near Chicago last fall, the success of which was recorded in the daily papers. We are informed that since then great improvements have been made, and that a company has been organized with sufficient capital, and that the manufacture of the improved machines has already commenced. Every agriculturist will wish that this attempt to introduce a simple and practicable steam-motor for farm uses may be successful.



PARVIN'S STEAM-MOTOR.

Steam on the Farm.

Many years ago, when railroads first came into use, a serious objection was made against them by persons engaged in raising horses, that the effect would be to dispense almost entirely with horses on the roads, and their business would consequently suffer. Events soon showed how unnecessary that apprehension was. Not only was there not any less demand for horses, but the necessity for their services so vastly increased by reason of the immense stimulus given to all sorts of business by the rapid movement of persons and produce, that the demand has never since been equalled by the supply, and the scarcity of horses has been a universal complaint. Now, when steam is being introduced into the business of agriculture, we hear exactly the same prognostications about the displacement of horses. What, then, shall we do with our horses? is the question proposed. The result can not fail to be exactly parallel with the case we have referred to. Steam is gradually working its way into agriculture in spite of prejudice. If it is shown to pay it will be certainly and quickly adopted. Will it pay? is the question now being solved. We believe that eventually it will pay to use it wherever and whenever it can be adapted to our needs. It pays now to thrash, grind, cut feed, saw fuel, pump, hoist weights, and in places to plow and cultivate the soil by steam. Why should it not pay to do all other work that is possible to be done by steam also? Our English brethren are trying experiments, aided as they are by large capital and a class of men who have leisure and intelligence sufficient to enable them to devote their time and energies to these experiments to solve this question, and whether they fail or succeed, we shall reap the gain with them.



STEAM REAPER.

We reproduce from an English paper an engraving of a steam mower and reaper, which shows how far in the way of experiment English inventors and capitalists are prepared to go. This machine is worked by a man and a boy, is self-propelling, and weighs no more than the combined reaper and mower in common use. One of the greatest advantages in using machinery is that when not in use it is not eating, it never tires, heat does not fatigue it, it is not subject to vice, disease, or death, and it works with great rapidity. A few years hence it is not at all unlikely that much of our plowing, cultivating, and harvesting may be done by machines, and probably much of our heavy work on the roads as well. Horses then will be in agriculture as in other business now, not the motive power, but merely an accessory one.

The Mocking-Bird.

The Mocking-Bird (*Mimus polyglottus*) as it appears in a cage is known to almost every one, but there are comparatively few of our readers who have had an opportunity of seeing it in its native woods in the South, where being a general favorite it is admired and protected by all. As a songster the Mocking-Bird has no equal in the world, although he has a rival in the Mountain Mocker (*Oreoscoptes montanus*) of the Rocky Mountains. The Mocking-Bird can imitate all of our American song-birds to perfection, and often attempts other sounds, such as the squeaking of a wheelbarrow or the squealing of a pig, with considerable success. Its food consists of insects and fruit, particularly berries. The Mocking-Bird is rarely seen as far north as the Middle States, although the writer once observed a pair in Springfield, Mass. The nest is built in a hedge or low tree, and is composed outwardly of sticks, and is lined with the finer fibers of roots. In the vicinity of New Orleans and Charleston, the negroes trap young Mocking-Birds and expose them for sale in the markets at fifty cents each. These are bought by dealers in birds and shipped in large numbers to our Northern cities, where they are kept until full grown and able to sing, when they are sold at prices ranging from $10 to $40 apiece.

MOCKING-BIRD.—*Mimus polyglottus.*

DRAINING QUICKSANDS.—The subject of draining quicksands has recently been discussed in the columns of the New York Tribune. The directions generally given by the correspondents of that paper have related to the manner of making a sound, artificial bottom on which to lay the draining tiles. Our own experience in the matter has been considerable, and we have never found this necessary. These sands are *quick* only because they are *wet*, and if the water can be withdrawn from them they will form the best floor that it is possible to secure in such land. For laying tiles, the only thing necessary is to deepen the drain very slowly. As soon as the depth of the water is reached, let the drain be opened for that depth its whole length; then, commencing at the lower end, deepen by a single scoopful at a time, in this way drawing off the water slowly, and without at any point going so deep as to have a pressure of water from the soil at the side. Opened in this way, little by little, there will be no difficulty in securing a good foundation, and in laying a drain in the most slippery quicksands.

Walks and Talks on the Farm.—No. 113.

A prominent Tennessee lawyer writes: "I am a subscriber and reader of the *American Agriculturist* and *Hearth and Home*, and I have been much pleased with your 'Walks and Talks on the Farm,' and I take the liberty of addressing you and making your acquaintance, and calling on you for some information in regard to the sowing, reaping, and curing of corn fodder. I am a native Tennesseean. I was a member of the Board of Visitors at West Point, N. Y., last June by appointment of the President, and after leaving there I spent some time North. I saw corn sowed in the State of New Jersey broadcast, and was told that it yielded more feed than any other kind of hay. Will you answer me, either by letter or in your Walks and Talks? I wish to know particularly how much corn to sow broadcast per acre, how to prepare the ground for sowing, when to cut, and how to cure, etc.?"

I am always glad to hear from any one interested in farming, and am not disinclined to give my views on any agricultural subject. But in this case I fear my correspondent has applied to the wrong man. If he had written to Horatio Seymour, or H. S. Collins, or Col. Waring, he would have got a more enthusiastic account of the virtues of corn fodder. If, on the other hand, he had written to Harris Lewis, the well-known Herkimer County dairyman, he would probably have been told that corn fodder was the poorest stuff that could be grown—that he had found from actual trial that cows fall off in their milk when fed green-corn fodder.

My own opinion is that corn fodder is a capital crop to raise where you can not grow anything better. On my farm it proves a very valuable crop to feed green to milch-cows the latter part of July, August, and September. I do not say it is as nutritious as good grass; but when the pastures are dry and bare it is a very pleasant thing to see the cows when they are brought up from the field at night feeding from full racks of corn fodder in the yard. They seem to like it. It seems to do them good; and no one has yet shown that this extra feed of green-corn fodder makes the cows give less milk. I do not *make* the cows eat the green-corn. They have just as much grass as they can find in the field. If they could find all the good grass they wanted I presume they would not eat very much corn.

The real question is, not whether corn is as nutritious as grass, but whether when your pastures are scanty corn can not be used to advantage as a substitute? Even Harris Lewis will admit, I think, that it can be so used with profit. I think all our dairymen are agreed on this.

It has been objected to green corn that it contains too much water. If so, it is an easy matter to remove a portion of it by cutting the corn and letting it wilt a little before feeding. A far more serious objection to it is the large amount of crude woody fiber which it contains. Let us look into this matter, for it is a point of great practical importance.

The following table shows the composition per cent of green-corn fodder cut the early part of August, as compared with field beets or mangel-wurzel:

	Water.	*Organic Matter.*	*Ash.*	*Albuminoids.*	*Carbo hydrates.*	*Fat.*	*Crude Fiber.*
Green-corn fodder	83.2	16.7	1.1	1.1	10.9	0.5	4.7
Field beets	88.0	11.1	0.9	1.1	9.1	0.1	0.9

It will be seen that green-corn contains *less* water, or, in other words, more dry matter than beets or mangel-wurzel. A ton of green-corn contains 356 lbs. of dry matter, while a ton of mangels contains only 240 lbs. I am inclined to think that land rich enough to produce 30 tons of mangels per acre would be rich enough to produce 30 tons of green-corn per acre. And this 30 tons of green-corn would contain 5 tons 680 lbs. of dry matter. Or estimating that cured corn fodder contains as much water as clover hay, or say 20 per cent, this 30 tons of green-corn would give 6 tons 816 lbs. of cured corn fodder.

There can be little doubt that in proportion to the time it occupies the ground we can obtain in many sections of the United States a larger amount of produce per acre from Indian corn than from any other crop.

The composition of the dry substance of corn fodder and the dry substance of beets (100 parts of each) is as follows:

	Organic Matter.	*Ash.*	*Albuminoids.*	*Carbo hydrates.*	*Fat.*	*Crude Fiber.*
Corn fodder	93.8	6.2	6.2	61.2	2.8	25.8
Beets	92.5	7.5	9.2	75.8	0.8	7.5

It will be seen that the dry matter of the beets contains only 7½ per cent of crude fiber, while the dry corn fodder contains over 25¾ per cent. *Can not we manage to grow a variety of corn that contains less of this crude, indigestible woody fiber?*

A crop of 30 tons of green-corn per acre contains 2,280 lbs. more of crude fiber than 30 tons of beets. If we could get rid of say one ton of this crude fiber and nine tons of water, 20 tons would be worth far more than 30 tons.

If there was no more crude fiber in green-corn than there is in beets the composition of the *dry substance* would be as follows:

	Ash.	*Albuminoids.*	*Carbo hydrates.*	*Fat.*	*Crude Fiber.*
Corn fodder	7.5	7.5	74.9	3.4	7.5
Beets	7.5	9.2	75.8	0.8	7.5

Theoretically, therefore, corn fodder, if we could get rid of the excess of the crude fiber, would be nearly if not quite as nutritious as beets. There is a little deficiency in nitrogenous matter and a little excess in carbonaceous matter. A little clover or bran or oil-cake fed with the corn fodder would supply all the albuminoids required.

In growing corn fodder, therefore, our object should be to select a variety of corn that contains the least woody fiber. I do not think any one has turned his attention to this point. Nearly all the advocates of corn fodder either recommend growing *sweet*-corn or of sending to the South-west for seed of the large Dent variety. If they can get corn that will grow from ten to twenty feet high they think it is a great advantage. I once saw a stalk grown in this State that was 22 feet high. I presume it was about as nutritious as a soft-maple sucker or a fishing-pole.

What we want is a variety that produces the largest proportion of leaves and the shortest and smallest stalk. Instead of sending South for the large, late kinds of corn, we had better send North for the smallest variety we can find—and then make it grow as large as we can by high manuring and good cultivation.

Corn fodder ought to be grown on dry land. Many farmers if they have a piece of low, rich, mucky land too wet to plow in the spring, sow it to corn fodder or buckwheat because they can do nothing else with it. Occasionally they get a good crop, but as a rule they do not get corn fodder enough to pay for the labor. I would advise my Tennessee friend to select the driest and richest and mellowest land he has. Then *drill in* the corn in rows 3 to 3½ feet apart. Three bushels of corn per acre is none too much. As soon as the corn is up go through it with a cultivator, and a few days later go through it again twice in a row. The object in going twice in a row is to run the cultivator as close as possible to the plants and thus destroy all the weeds. Cultivate frequently as long as a horse can get between the rows of corn. If the land is rich enough this plan will give a large crop of green fodder.

The common mistake in growing corn fodder is in sowing it broadcast. Three years ago I had three acres of warm, rich land where the clover had failed. We plowed it up the last of May and drilled in corn, 3½ feet apart, and cultivated thoroughly. We had a splendid crop. The next year the Deacon thought he would raise some too, and he sowed a piece broadcast on low, wet land. His crop was not worth cutting. Last year he concluded he would drill in his crop, and borrowed my drill for the purpose. After he had got through his faith failed him; and he went over the piece again, drilling in another row between each of the first rows. This of course made the rows so close together and so crooked that he could not use the cultivator. Weeds and corn had to grow together, and the result was what might have been expected—not half a crop, and the land left in a foul condition.

The essential points in raising good corn fodder are: (1) Rich, warm, dry land; (2) a small, early variety; (3) sowing in drills wide enough apart to allow the use of a horse-hoe; (4) thick seeding in the rows; and (5) thorough cultivation.

I have no time now to say anything about curing corn fodder. And in fact I have had little experience on this point. I should never think of growing corn solely for fodder. I would sow enough to insure having an abundant supply of green-corn fodder in summer, and if there was more than was needed cure it for fodder in winter. But *on my farm* it would not pay to grow corn for fodder in winter. It is too much work to cut and cure it. I can raise, cut, and cure clover hay cheaper.

I do not think I ever kept my cows and horses so economically as during the past winter. And the cows have been fed principally on cut corn-stalks, with a little bran and corn-meal. I *drill* in my corn; and last year I not only had a good crop of corn, but also a large growth of stalks. I think this a better plan than raising corn fodder alone. Drill in the corn in rows 3½ feet apart, and put on about as much again seed as you would if planted in hills; and if the land is rich enough you are pretty sure of a good crop of fodder, and stand a fair chance of getting a good crop of corn. This, on my farm, is better than to grow corn for fodder alone.

You must not overlook that little clause "if the land is rich enough." It is no use trying to cheat the land. If the soil is not capable of producing a good crop of corn when planted in

hills 3½ feet apart, it will not be capable of producing a good crop when the plants stand as thick again in the rows. Why should we expect it? It is only on clean, dry, rich land that we gain anything by drilling in corn. And the same is true, I think, in regard to planting potatoes in hills or in drills. If the land is rich enough, you can get a larger crop by planting in drills. You have twice the number of potato-plants on an acre. But until we have got our farms richer and cleaner than most of them are at present, I am inclined to think that it is better to plant in hills. We can cultivate both ways and have a better chance to kill weeds.

"I am glad to hear you say that," remarks the Deacon; "but why don't you practice what you preach?"

I do. I am simply anxious not to mislead. I shall drill in my corn this year, and plant my potatoes in drills and not in hills. And I contend that in my case this is the better plan. But it would not be the best on a great many farms. I use corn as a "fallow crop." I plow up the clover sod early in the fall, and in the spring plow it once or twice and cultivate and harrow thoroughly. I want to start all the weed-seeds. Keep plowing, cultivating, harrowing, and rolling until the last minute. Then drill in the corn as fast as the land can be got ready. If you have worked your land thoroughly, and made it quite fine and mellow, the weeds will be likely to spring up by the million. As soon as the weeds begin to start go over the field with a Thomas harrow. If one harrowing does not pull up and kill the weeds go over it again. And as soon as the rows can be distinctly seen, put in the cultivator, and follow with the harrow. Harrow every three or four days until the corn is five or six inches high. It may pull up or smother a few hills, but this is nothing in comparison with the benefit. Keep the cultivator going until the middle or end of July, or even into August if any weeds still show themselves. In August I would also go over the field with a hoe and cut out any weeds that may be growing in the rows.

This plan of cultivating corn will destroy far more weeds than an ordinary so-called summer-fallow. Last year it gave me not only a capital crop of sound corn, but a heavy growth of good fodder, and left the land, with the exception of one or two patches of thistles, as clean and mellow as a garden. And you should recollect that the weed-seeds were not buried and kept dormant. The weeds were not temporarily held in check. They were killed, and will trouble me no more I can excuse a man who has recently taken a farm for adopting some temporary expedient for checking weeds, but I have little respect for a farmer who deliberately, year after year, and as a regular system, practices and defends such a course.

I can sympathize with a farmer who does not succeed in killing weeds in his fields, or in getting rid of foot-rot or scab in his sheep; but I have no sort of respect for the man who says that the weeds can not be killed, or the foot-rot or scab cured. The former simply, it may be, fails for want of energy, promptness, and perseverance, or from ignorance as to the best methods; but the latter, while he may be a good "practical" sort of man, is an intellectual dwarf, and is almost invariably as conceited as he is prejudiced and ignorant.

Of course our flocks will always be liable to attacks of foot-rot and scab, and weeds will continue to grow. But the weeds in six inches of surface-soil can all be killed, and the scab and foot-rot in a given flock can be cured. If, after we have succeeded in killing all the weeds and all the weed-seeds in six inches of surface-soil, we plow up an inch or two more land, the weed-seeds in this fresh earth will spring up, and must be destroyed in the same manner as the first; and after you have cured the scab a single scabby sheep from an infected flock will communicate the disease to your healthy sheep. But while this is true, shame to the man who says scab and foot-rot can not be cured.

Several gentlemen have written to me in regard to our Drainage Law. They will find it in the Statutes of New York for 1869, chap. 888, and in the Amended Statutes of New York, 1871, chap. 303. The law is very crude and imperfect, and needs a thorough revision, but it has proved very useful. The great point is to get good commissioners.

Where the work is not extensive, the better plan is to endeavor to do it by mutual agreement. Call a meeting, and talk the matter over in a friendly spirit, and agree to let some one or two good men say what proportion of the expense shall be borne by the different farmers interested, according to the extent of land to be benefited by the draining.

If anything, wages are higher this spring than ever, and the men more inefficient. They seem to realize that it is impossible for them to earn their wages, and they do not try! I am inclined to think that farmers will put in less corn than for several years past, and that a year from this time will find our cribs and granaries comparatively empty. I am not planting half as much corn or potatoes as usual. I am letting the land lie in grass and clover.

In this section no crop brings in so much money in proportion to the labor as hay. We shall have to make a business of growing it. On strong, heavy clay land that is not dry enough to grow winter wheat it will pay to summer-fallow for timothy. Plow the land two or three times and get it into good order, and sow it to timothy in August. If the work is well done we may expect a good crop the next year, and a better one the year after. One advantage of this plan is that only such parts of the field that are likely to be benefited need be plowed. The remainder of the field may remain in grass, either for pasture or for hay. It is true we lose the fall pasture, but it will do the meadow no harm to let the grass rot on the ground.

"I tried this plan on one of my meadows," remarks a friend, "and the result was not what I expected. There was a patch of thistle in the field, and I plowed up the land and summer-fallowed it, and sowed it to wheat and seeded it down. I did not get five bushels of wheat per acre."

Very likely. But this is no argument against the plan I have recommended. The land you plowed was a sandy knoll—such land as no sensible farmer would think of fallowing for any other object except to kill weeds. It was a good thing to plow it and kill the thistles; but you should not have sown it to wheat. You should have sown grass-seed alone. If you had done this, and had plowed in a good coat of manure, the probabilities are you would have had a good crop of grass the next year and better the year after. It is the rich, clay lands, abounding in dormant plant-food, that are most benefited by fallowing—not the poor light sands. Fallow your clayey and manure your sandy land.

I had a case in point on my own farm. One of my knolls was full of stones, and I plowed it repeatedly to get out the stones. The land on this knoll was a calcareous loam. It had never produced half a crop since it was cleared of timber, fifty years ago. Since I plowed it so thoroughly and got out the stones it has produced heavy crops. It is true that the whole field had a good dressing of manure. I had another knoll, full of stones and thistles, that was a light sand, poor as poverty. This I treated in the same way, except that the field was not manured. On this knoll the wheat was so poor as hardly to be worth harvesting. The land needed the repeated plowings to kill the thistles and to get out the stones, but it needed manure also.

Roots as Manure.

It has been found that the roots of a good crop of red clover left in an acre of land after the removal of the crop weigh six thousand five hundred and eighty pounds, or from three to three and a half tons. The same examination gave the weight of an acre of rye roots at thirty-five hundred pounds, and of wheat roots at thirty-four hundred pounds. All of this matter is of course valuable for the use of such crops as may be grown during or after its decomposition. The well-known superiority of clover as a manuring crop, however, is not due alone to the greater amount of organic matter, taken mainly from the atmosphere, which its roots supply, but also to the position in which this matter is deposited. The roots reach deeply into the soil, and on their decomposition they serve to draw moisture from the lower soil, and by the decomposition of fertilizing matter to a considerable depth they induce the descent of the roots of other crops to a point where they are much more sure of a supply of moisture during dry seasons than they could be if nearer the surface. Then again, these deeply penetrating roots traverse parts of the subsoil not heretofore open to vegetation, and in their decomposition they produce a chemical effect on the inorganic substances that lie along their courses, and help to render them, too, serviceable for future crops.

Dipping Sheep.

There is given on this page an engraving of a tank and appliances for dipping sheep. This is an operation that ought to be performed at this season on every flock, both sheep and lambs. Vermin which infest sheep greatly increase during the winter. Often cutaneous disorders, as scab, have largely spread throughout the flock. All these have an injurious if not destructive effect on the sheep and their fleeces. Dipping in the various solutions in vogue, which have been heretofore described in the *American Agriculturist*, destroy the vermin and cure skin diseases. The improved condition of the sheep's health acts on the growth of the wool, which becomes heavier and of more even staple. The tank shown in the engraving is a water-tight box just large enough to hold the sheep. There is a false bottom, perforated with a number of holes and suspended by cords, on which the sheep is represented as standing. The cords are wound on the rollers seen at the ends of the tanks. One of the rollers has a crank on one end, and each of them has a grooved wheel or pulley around which a cord

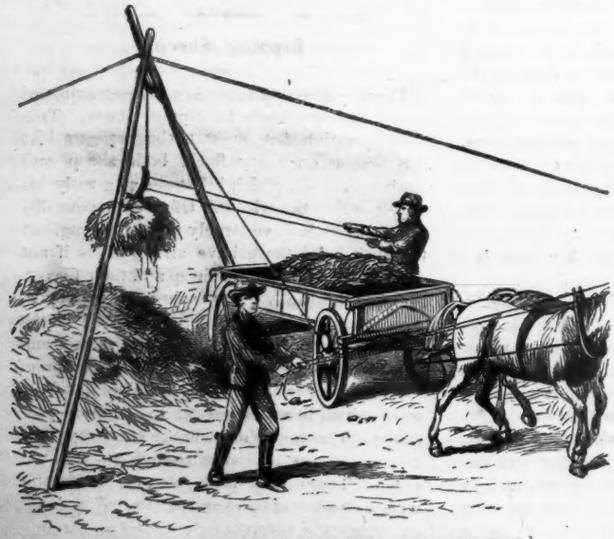
is passed. When one roller is turned by the crank the other is also turned, and the sheep is gradually lowered into the dipping liquid in the

TANK FOR DIPPING SHEEP.

tank. The sheep is led up the gangway quietly on to the movable bottom, there is no plunging or splashing, and when the dipping has been given, the floor is raised and the sheep's fleece is squeezed free from all superfluous dip, which drains away through the holes into the tank again. The sheep is allowed to depart by way of the sloping platform as quietly as it was brought up. As the dip is used up the tank should be replenished from a barrel near by. The lambs should be dipped after the sheep are shorn, as then all the vermin will have gathered on to them and may be destroyed with ease.

The Use of the Horse-Fork.

The mechanical appliances for aiding the labor of the farm are not nearly so much availed of as they might be. To confine ourselves to only one illustration of this we here refer to a use that may be made of the horse hay-fork at this season. We have made considerable use of it to load manure from the pile in the barn-yard. Loading manure is the hardest work the farmer has to perform, and it has almost always to be done in a hurry. If 100 loads of manure have to be hauled out, there are over 200 tons to be lifted by the hands and arms a height of five feet into a wagon. This is severe labor, and the severity of it is seemingly increased when we consider that by a little arrangement the work can be done by the horses, and the farmer's muscles be spared. Every farmer ought to have a horse hay-fork. Those that have one can procure two poles 14 or 16 feet long, tie them together at the top, stay them with one or two guy ropes to the barn-yard fence, and hang the horse-fork tackle to the top of them. These poles may be placed one on each side of the manure pile, as in the engraving, in such a position that the fork may be made to take up the manure and drop it into the wagon-box without any other handling being needed. The lower pulley should be fastened to one of the spokes of the wagon wheel, as shown in the engraving; or one or both horses are removed from the wagon and hitched on to the rope, and in five minutes two smart boys of twelve years of age, who could not easily lift a hand-forkful of manure into the wagon, can put up a good load.



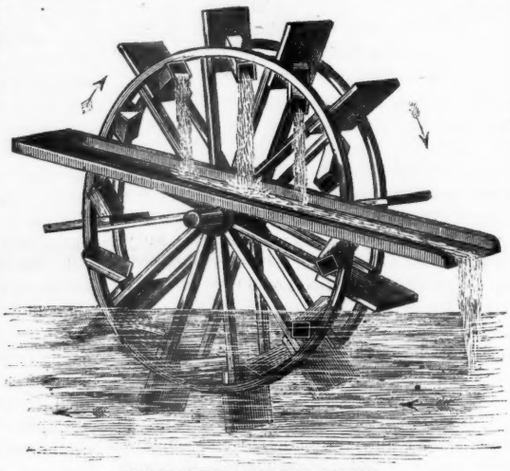
ARRANGEMENT OF HORSE-FORK FOR LOADING MANURE.

Castor Beans.

For a crop of castor beans the ground should be well plowed and harrowed. Lay it out in rows six feet apart, and between every sixth and seventh row leave a space wide enough for a wagon to pass through when gathering the crop. The seed should be covered with hot water, and be allowed to stand 24 hours before planting. Six or eight seeds may be dropped in a hill as soon as the ground is warm, to be thinned out to two plants when all danger from cut-worms has passed. The ground should cultivated until the plants are three feet high. About the first of August some of the seeds will be ripe, and must be gathered immediately, or the pods will burst and the beans pop out. The clusters of seed-pods which are ripe are cut off entirely, and the gathering continues until frost kills the plants. The pods are to be scattered upon a piece of hard, smooth, cleanly-swept ground, surrounded by a fence, and they are to be turned and dried until all the beans are shelled out. Then the floor is cleared for another lot. If rain is expected, the beans must be raked up and covered and kept dry. The beans are cleaned in a common fan-mill, and should be kept in sacks in a cool place until sold. Twenty bushels per acre is an ordinary crop, and the market price is generally $1.50 a bushel in St. Louis, which is the principal market in the North-western States. The refuse of the oil-mills makes a valuable fertilizer, being worth nearly one third as much as guano. For composting with coarse vegetable matter or swamp muck it is especially useful. As feed it is totally useless; in fact, from its strong purgative qualities, it is dangerous to stock, and they should not be permitted access to it.

A Water-Wheel for Irrigation.

The vineyards which lie along the banks of the rapid rivers of Northern Italy are supplied with water raised by water-wheels. The same device might be made useful in many places in our own country. It is shown in the accompanying illustration. The wheel is made roughly of wood, after the manner of the paddle-wheel of a steamboat, and is made to revolve by the flow of the stream in which its lower part is immersed. Buckets, which are merely board boxes about 10 inches square and 20 inches deep, are fixed to the rim inside of the paddles. As each bucket passes through the water it is filled, and its position is such that it rises nearly full. As it approaches the top, and, in the revolution of the wheel to which it is fixed, is gradually turned upside down, its contents are poured out into a trough which leads the water away to the land. The mouths of the buckets project a little beyond the rim of the wheel so as to discharge at the center of the broad gutter, which is removed only to sufficient distance to allow the ends of the paddles to pass. The size of the wheel must be regulated by the force of the stream and by the hight to which a certain quantity of water is to be lifted.



WATER-WHEEL FOR IRRIGATION.

Broom-Corn Culture.

We have before us a great number of inquiries about the cultivation and management of broom-corn and its manufacture into brooms. At the outset it would be proper to caution farmers to whom this crop is a new one against rushing into it unadvisedly, for it is one of those special crops which depend on a great many contingencies of soil, seed, weather, care in harvesting and preparation for market, to say nothing of the uncertainties of the market, which are

a serious item of consideration in themselves. While when all goes well it is a paying crop, it would be wise that the culture should be gradually undertaken, and just enough raised for home use to be worked up for domestic purposes, until it is certainly known that the conditions for success are favorable. The soil must be good. Fair corn land will do for a crop for home use, but for marketable brush the land must be rich enough to bring 50 to 75 bushels of shelled corn per acre. Such land as the Connecticut, or Mohawk, or Miami river bottoms, or the rich Western prairies, well plowed just before planting, and well harrowed and

Fig. 2.—CLEANING THE BRUSH.

free from weeds, will be suitable; and it would pay better on any other than such land to grow almost any other crop.

The seed should not be planted until the weather is settled and the ground is warm; the middle of May until June 10th would be a proper seed-time in any locality not subject to early autumn frosts. There are several varieties of seed. The Tennessee Evergreen produces fine brush, and yields 1,000 pounds to the acre. The Missouri Evergreen has a longer, coarser brush, and requires closer planting than the former to make fine brush. The Mohawk, Shaker, and Early York are the kinds produced chiefly in the Eastern States; they produce a light short brush, which must be cut early, as it turns red soon after blossoming. A dwarf broom-corn, for making whisks and brushes, is

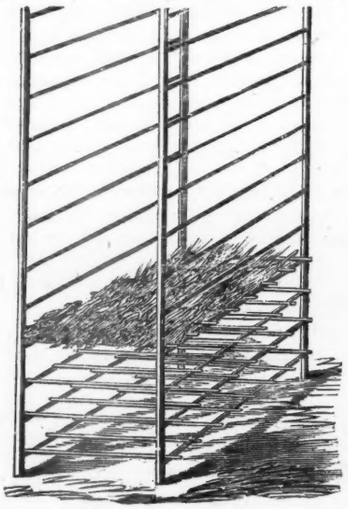


Fig. 3.—DRYING RACK.

sometimes grown, which yields 1,200 to 1,500 pounds per acre, but there are difficulties attached to harvesting it which make it an undesirable crop. About two quarts of seed per acre are required, with four or five stalks to the hill for long brush, and eight or more for short or inside brush. If planted in drills—which is by far the best method—the seed should be dropped two or three inches apart in the row. An Emery corn-planter may be used for planting in drills, which should be 3½ to 4 feet apart; or any of the common corn-planters which have broom-corn attachments may be used. Some of these plant two rows at once, finishing 20 acres a day with two horses. They should be set so as to cover the seed less than an inch in depth. That this may be done regularly the soil must be very fine and smooth. The cleanest cultivation is required. Shares' horse-hoe, or a V harrow with the center-tooth removed and made to straddle the row, are convenient implements for this purpose. Each row should be cultivated once up and once down each time to effectually kill weeds. The crop should be harvested as soon as the blossoms fall, so that the brush may be of a light green color, and tough and elastic when cured; if cut later than this the brush loses weight. It is in the cutting and curing that the price is made; well-cured green brush brings readily $120 to $140 per ton, when over-ripe, red brush will hardly sell for $40 a ton. When ready to cut the brush is to be "tabled." This operation is performed by bending the stalks about 30 inches above the ground, and laying them flat over towards the next row in a diagonal direction, so that the brush overhangs the next row about a foot. The second row is broken down and laid over the stalks of the first row, interlacing with them and forming a table 30 inches above the ground. Two men or boys pass up the rows breaking and laying down the stalks in this manner. This operation of "tabling" is shown at figure 1. Then the cutters follow, armed with sharp knives similar to shoemakers' knives, and cut the brush with eight inches of stalk, no more nor no less, and lay it on the table. If the butts are less than eight inches long it is a loss to the grower, as it reduces the weight of the brush; if it is cut longer the extra length is waste, and the value is reduced.

In wet, hot seasons the growth of brush is very rapid, and the straw being weak and soft it bends and becomes crooked, and its value is lessened; all crooked brush should therefore be kept and packed by itself, lest being mixed with straight brush the value of that should be reduced proportionately. Crooked brush is the result of one of those contingencies of weather that the grower can not guard against, and he must make the best of it. It will happen with all varieties of corn. As the brush is cut it should be hauled to the barn and put under cover without loss of time; the green color is very soon changed by sun-light to a straw color, and the value thereby reduced. The brush should be laid in the wagon straight and even, the crooked being kept by itself, and on its arrival at the barn it is put through the scraper to remove the seed. This is a machine (figure 2) run by a horse-power, and contains either one or two drums, or cylinders, furnished with short teeth similar to those of a thrashing-machine. The brush as it is taken from the wagon is laid on a table, and from thence is

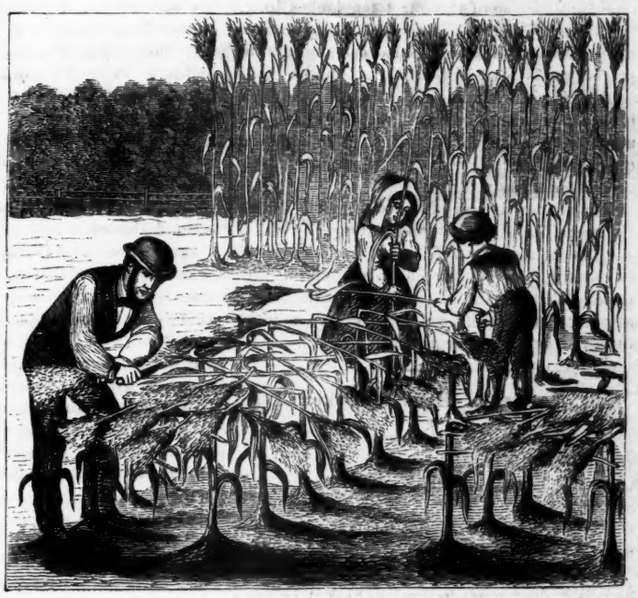


Fig. 1.—TABLING AND CUTTING BROOM-CORN.

taken by the butts in handfuls and thrust into the scraper until freed from seed. If there is but one drum the brush must be turned; if there are two drums, one exposure of the brush to their teeth for a moment is sufficient to clean it.

A boy then takes the brush and spreads it on the drying-racks in the barn or dry-house. If a large quantity is grown, a dry-house, similar to a tobacco-house, with every fourth or sixth plank hung on hinges is needed; but for a small quantity racks may be set up on the floor of an ordinary barn. The simplest kind is made by taking poles or light scantling two by two and eight to twelve feet long, and nailing strips four feet long six inches apart on every pair of them. Common sawed lath free from knots or knot-holes make good strips, as the brush is very light. The racks are set up in rows, three

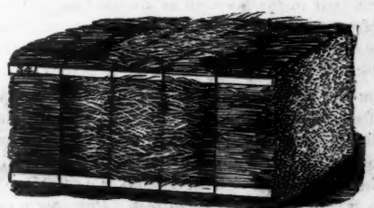


Fig. 4.—BALE OF BROOM-CORN.

feet ten inches distant from each other, and laths are laid a few inches apart on the cross-pieces, making a succession of stalls with shelves six inches apart, through which the air has complete access. The racks are shown at fig. 3. The brush is laid on these lath shelves not over two inches in depth. It should be quite free from moisture when placed on the shelves, or it will heat or mold and lose color. Here it remains, getting plenty of air during fine days, and being shut up when there is rain, until perfectly dried. It is then ready to be baled. For this a hay-press is needed. The brush is

selected to commence with, as the outside of the bale should always be of the best; it is laid smoothly, with the butts quite even at each end of the bale, the brush lapping in the center. The brush is thus laid in, always being carefully placed that the bale may come out square at the ends and neat and smooth. The bale is pressed very tightly, so as to get 300 pounds or over into a space of three feet ten inches long, twenty-four inches wide, and thirty inches deep. A stout lath is placed at each corner to protect the brush, and the bale is bound by four or five No. 9, or common fence wires. At fig. 4 is shown a finished bale with the weight marked upon one of the corner laths. The different qualities of brush are baled separately. The crop is then ready for market.

Broom-corn is one of those things in which "corners" are occasionally got up, by which the farmer is victimized; it is therefore well to be careful about the person to whom the produce is shipped, and generally it is safest to sell at once when the price is satisfactory; holding for a rise brings many a farmer to grief.

How To Set a Horse's Broken Leg.

[Many a horse with a broken leg is killed to put it out of its misery that might, with proper treatment have been cured, and if not made as valuable as before at least saved to many years of useful labor. Skilled Veterinary Surgeons are yet rare, and in the country very seldom to be found. It is much to be regretted that physicians and surgeons generally think it beneath them to treat domestic animals. This is not the case, however, with a surgical friend of ours who has had much success in treating fractured legs of horses, and has had the satisfaction of seeing several animals that would otherwise have been killed made useful to their delighted owners. At our request he has written out his method of treatment.—ED.]

Thanks to the application of common-sense to surgery, we have now at our command a successful method of treating fractured limbs among our farm stock. For curable cases this new method will give a good percentage of fair results.

Here it is. Suppose we have a horse with his hind leg broken six inches above the fetlock. The first thing to do is to make for him a firm, *narrow* stall, not much wider than is absolutely necessary to enable the animal to stand, or a pair of stocks such as are used for shoeing refractory colts or mules. Arrange a windlass by which, when a band of the strongest sailcloth or some similar material is placed under the animal's belly, his hind quarters can be lifted clear of the ground. This belly-band should be one and a half to two feet wide, and long enough to allow its ends to be level with the horse's back. Thus it makes a snug cradle in which the patient can rest. Put now a collar on his neck, and to it attach a strap which shall extend from it between the front legs to the belly-band, and thus prevent that from sliding backwards or wrinkling into a band narrow enough to pain the horse when his weight comes to be borne by it.

Now having attended to the preliminaries we are ready to set the limb. See, first of all, that the leg is well clear of the ground, making sufficient allowance so that when the belly-band stretches it will not allow the foot to reach the ground. Bandage the leg smoothly but not too firmly from the foot up to above the "knee" with a flannel bandage two or three inches wide.

Now take *canton-flannel* with a good nap, and wide enough to cover the entire bandage, cut it into such shape as will accurately fit around the leg—then make five more just like it. Take six pounds of the best freshest Plaster of Paris, not land plaster, but such as is used for hard finish, and stir enough of it slowly into two quarts of cold water to make a mixture as thick as cream. Saturate one of your last made canton-flannel envelopes for the leg in the mixture, then lay it on a board with nap side up, and pour on to and rub into it as much of the liquid plaster as it will hold. Next rub into the same flannel enough of the dry plaster to fairly thicken and toughen it.

Treat another piece of flannel exactly the same way and lay the two fairly together one on top of the other, and promptly bandage them around the leg, which is now to be held in its right position until the plaster hardens. Meanwhile spread over the last bandage a thick coating of the wet plaster with your hands; and then prepare two more pieces of canton-flannel as before; apply these over the first two and surround them with a bandage which is also smeared with wet plaster.

And, finally, the last two pieces of flannel are treated as the others have been, and in turn are to be well bandaged and the remaining Plaster of Paris rubbed into the last bandage. This, when it has set, which will be in a few minutes, will give not only a hard but a tough splint that fits the leg so closely and keeps the ends of the bone in such exact position as to render displacement impossible; providing the leg has been properly held while the plaster was hardening. Everything must be in readiness before the plaster is mixed with water, and it must require less than half an hour to saturate and apply all the flannel and the bandages, or the plaster will have become quite too hard to work. By the time the last bandage is to be applied it will be seen that the plaster has become thick and pasty, and is then in good condition for coating over all with the hand.

This would be my plan (as it has been, and successful, too,) for the fracture I have described.

The principle involved in any other case and with other animals would be similar; with such modifications as common-sense suggests.

I contend that an effort should be made in almost every instance to save the unfortunate animal. I have cured a number by the method detailed above.

The average time would be from six to twelve weeks before the belly-band can be removed and the limb tried. It may be necessary to renew the splint once, and it should not be finally taken off until some time after the leg is walked upon, as it affords additional strength to the point of fracture. What I have written may not be new to some readers. I am certain it will be to others, and for them I have written.

Feeding Young Trout.

BY FRED. MATHER, HONEOYE FALLS, N. Y.

After trying three years to find live food for my fry so that the diseases caused by decaying food on the bottom of the troughs would not kill half of my "babies" every year, I have at last found it, and give it to your trout-growing readers in season for this year's crop.

Having tried to breed several species of crustacea, insects, etc., I found accidentally, while straining rain-water for laundry use, the article so long sought, the "wiggler" or mosquito larva. I fed them last season with the most gratifying results, and am making arrangements to do it on a larger scale at my ponds at Honeoye Falls, N. Y., this coming season.

Probably two barrels will be enough for each thousand fish, and the larvæ can be collected much easier than the same bulk of liver can be chopped. Having sent out both spawn and young fish to readers of the *Agriculturist*, I feel it my duty to keep them fully posted on all matters of importance.

Nutritive Value of Feed.

The proportionate values of the following materials used for feeding farm-stock are gathered from published analyses by the most eminent agricultural chemists, and have been corroborated by the results of the practice of many eminent English feeders. They include the relative flesh-forming, fattening, and total feeding values of the different articles mentioned, and are probably the most trustworthy information that can be gathered from all sources at the present time. They are as follows, equal weights of each being considered.

	Flesh producing.	*Fat producing.*	*Total Value.*
Turnips	1	5	7
Rutabagas	1	7	9
Carrots	1	7	10
Mangels and Kohl Rabi	2	8	12
Straw	3	16	22
Potatoes	3	17	22
Brewer's grains	6½	18	25
Rice Meal	6½	77	88
Locust Beans	7	72	82
Hay (early cut)	8	50	64
Millet (seed)	8	76	85
Buckwheat	9	60	69
Malt	9	76	81
Rye	11	72	80
Oats	12	63	79
Corn	12	68	80
Wheat and Barley	12	67	82
Dried Brewer's grain	16	70	87
Palm-nut meal	16	98	82
Earth-nut cake	20	40	54
Beans (English field)	22	46	74
Peas	22	60	79
Linseed	23	112	82
Cotton-seed cake	24	46½	61
Malt sprouts	26	60	87
Tares (seed)	27½	57	79
Linseed cake	28	56	73
Bran and coarse Millstuff	31	54	76
Rape cake	31	53	78
Decorticated Earth-nut cake	39	45	72
Decorticated Cotton seed cake	41	57	82

In these estimates the flesh-forming value is in proportion to the nitrogenous elements contained in the food. The fat-formers consist of starch, oil, and fat; and as oil and ready-formed fat is estimated as double the value of starch in feeding, the total feeding values of different articles varies in somewhat different ratios to those of the fat-forming elements. For instance, while bran contains more carbonaceous matter, viz.: starch and oil together, than rape cake, and exactly the same flesh-forming material, yet its total feeding value is less than that of rape-cake, because the 53 parts of starch and oil in the rape-cake have more oil and less starch than the 54 parts of starch and oil in the bran, and the oil being, as we have said, more valuable than the starch, therefore the rape cake is worth more than the bran as feed. The numerous inquiries that have come to us as to the value of various feeds are here answered.

Cultivating Flax.

Flax or linseed may be grown on any moderately rich soil, whether upland or bottom. A moist bottom suitable for oats will grow good fiber, and a sod properly plowed under is adapted for it. If the object is seed, and not

the fiber, a good dry upland is most suitable. When seed is grown the quality of the fiber is sacrificed, for if seed is desired a branching open stalk must be produced, and to secure such a stand thin seeding must be adopted, not more than half a bushel of seed per acre. The soil should be made very fine by repeated harrowings, the seed sown evenly broadcast, and covered slightly with a bush harrow. Early sowing is desirable, but a crop may be grown from seed sown early in May. Flax is an excellent shade crop, and leaves the ground mellow and free from weeds, and in good order for a following crop of wheat on ground rich enough for it. As soon as the seed-bolls turn brown the crop should be cut Either the cradle or the reaper may be used, and the crop raked into gavels as in harvesting buckwheat. It is unnecessary to bind it unless it is saved for the fiber. When dry enough, it may be thrashed out by the flail or the machine. Most of the fan-mills have sieves for cleaning flax, and any manufacturer of these mills can supply them. Ten to twenty bushels of seed is an ordinary crop, and the straw as it comes from the thrashing-machine makes excellent paper-stock. If there is any demand for the fiber within practicable distance it will pay very well to bind the straw in bundles, thrash out the seed, and expose the straw to the rotting process by which a ton of valuable fiber may often be procured from each acre of ground. The cake left as the residue after pressing out the oil is one of the most valuable articles of feed; and if used on the farm, and the manure returned to the soil, a crop of flax may safely be grown once in five years in place of a crop of corn, which requires more labor, and brings in much less money to show for it.

JERSEY CATTLE FOR BEEF.—It is frequently objected to the use of Jerseys and their grades, that although they are valuable for the dairy, a common farmer can not afford to grow stock which will not be useful for the butcher when its dairy days are over. This implies that the Jerseys do not fatten well, an opinion for which there is not the slightest foundation. A good Jersey, so long as she is milking, turns her fat into the pail to that degree that she looks like a rack of bones; but when she ceases milking she does not lose her appetite, nor does she waste the fat-producing elements of her food. On the contrary, she stores them away in a rich, highly-colored, and well-flavored deposit, that makes much better beef than can be obtained from any other cow of her age and size.

High-Feeding Thorough-bred Animals.

Fisher Hobbs, the well-known breeder of Essex pigs, once remarked to a gentleman who had bought one of his sows: "Don't overfeed; make her work hard for her living." Right or wrong, many experienced breeders think it very injurious to overfeed their breeding animals. We think there can be no doubt on this point. But then it is still an open question, What *is* overfeeding?

At the National Convention of Shorthorn Breeders" at Indianoplis, this subject was introduced and called out a great diversity of opinion. Mr. Sodowsky, of Illinois, said: "A year ago I bought a cow, one of the fattest animals I ever saw, and on February 16th she produced me as fine a calf as I ever saw produced."

Mr. Duncan, of Illinois, was convinced that cattle are as liable to fail to breed in low order as in high order.

Mr. Dye, of Illinois, said it was a theory of his that high feeding had rendered our blooded stock less productive than our common cattle.

T. C. Jones, of Ohio, said, "as a matter of fact, when animals are very fat they are not so liable to breed as when they are only in good condition. Mr. Booth [the well-known English breeder] had stated that he will never show again. His cattle are all running out, and he says that the infertility of his leading families must be attributed to high feeding for the shows."

Mr. Duncan, of Illinois, a breeder of great experience, said: "I favor breeding from animals in the very highest condition that it is possible to keep them for that purpose, for the reason that the general law of nature that like produces like, comes in and operates in my favor. You may take the highest breed of animals and breed from it for generation after generation, but if they be poorly fed you will make scallawags of them; while if you keep them in the highest condition possible, you will increase the natural propensity to take on flesh, and thus nature assists you as breeders and farmers in the development of the qualities for which these animals are chiefly valuable."

This, so far as it goes, is very good reasoning. Mr. Duncan continued: "What was it that gave Mr. Booth his notoriety as a breeder in England? Mr. Booth and Mr. Bates were the rival breeders in England, and in consequence of their rivalry, they bred from their animals in high condition, and when Mr. Booth was asked by the American agents if he was not afraid to make his animals barren by keeping them in such high condition, he said, 'Gentlemen, these are fat beasts by nature. It is as natural for them to breed in their condition as it is for the ordinary cattle of the country.' My opinion is this," continued Mr. Duncan, "that the breeding period of any animal can be shortened by their being kept in show condition for too long a time, and yet I believe I saw quite a number of times, myself, *Young Mary*, sold by the Ohio Importing Co., and purchased by Capt. Cunningham, in the show rings, in high condition—still that cow produced her last calf in her twenty-first year. That is a fact. . . . I do not believe it shortens the breeding period to keep them in good condition at one year old, or two years old, or anything like that, but still I would not go further; but I would keep them at those ages in as high condition as possible, in order to have them heavy producers."

This is the true doctrine, and one which we have repeatedly advocated in the *American Agriculturist*. Let all animals bred principally for meat, have all the food they can eat, digest, and assimilate while young. As long as they will grow, let them have all the nutriment they can convert into growth. It will not hurt them. But *when they have attained their growth*, then feed only enough to keep them in the highest health and vigor. Close confinement and high feeding with rich concentrated food are quite likely to prove injurious. Our own aim is to give animals that have got their growth as much exercise as possible, and abundance of food, but not of too nutritious a character.

Mr. Stevenson, of Indiana, was not in favor of high feeding. He hoped the Convention would take such measures as to induce the people to adopt this breed of cattle (Shorthorns) everywhere. To induce them to do that, they must believe that they can live upon our prairies and upon our blue-grass fields—that they can live as other cattle live and not deteriorate.

We think that the better plan is to ascertain the truth, and let people know it. It seems somewhat strange to us that any Western farmer living where corn is so abundant and cheap, should be afraid to keep a breed of animals that require, when young, more or less corn in winter to keep them growing as rapidly as they are capable of growing. We have by careful breeding and feeding, given them this quality of rapid growth. This is what constitutes their great value—the capacity of appropriating a large amount of nutriment and converting it into a large amount of choice meat.

WHAT IS SAID OF BUTTER.—When a wholesale dealer is questioned as to the proportion of really fine butter he receives in his consignments, he replies about *five* per cent. A larger proportion than this comes to market as grease. The grocer will tell you that of all his stock good butter is the most difficult to procure, and costs him most time and trouble to select. We know there is no good reason why this should be so. Here and there scattered widely apart throughout the country we know farmers who make excellent butter, which would be classed first quality in the market, and next door to those are neighbors who make trash unfit for food. On the counters of country stores may any day be seen rolls of butter most widely different in color, flavor, and texture. One farmer is careful and cleanly, his wife keeps her dairy sweet and her pails and pans perfectly pure; another keeps a foul stable, milks in an uncleanly fashion, has musty feed and foul water for his cows, while his wife is equally careless in her dairy. How can the butter in these two cases be other than widely different in quality and value?

Pearl-Fishing in Vermont.

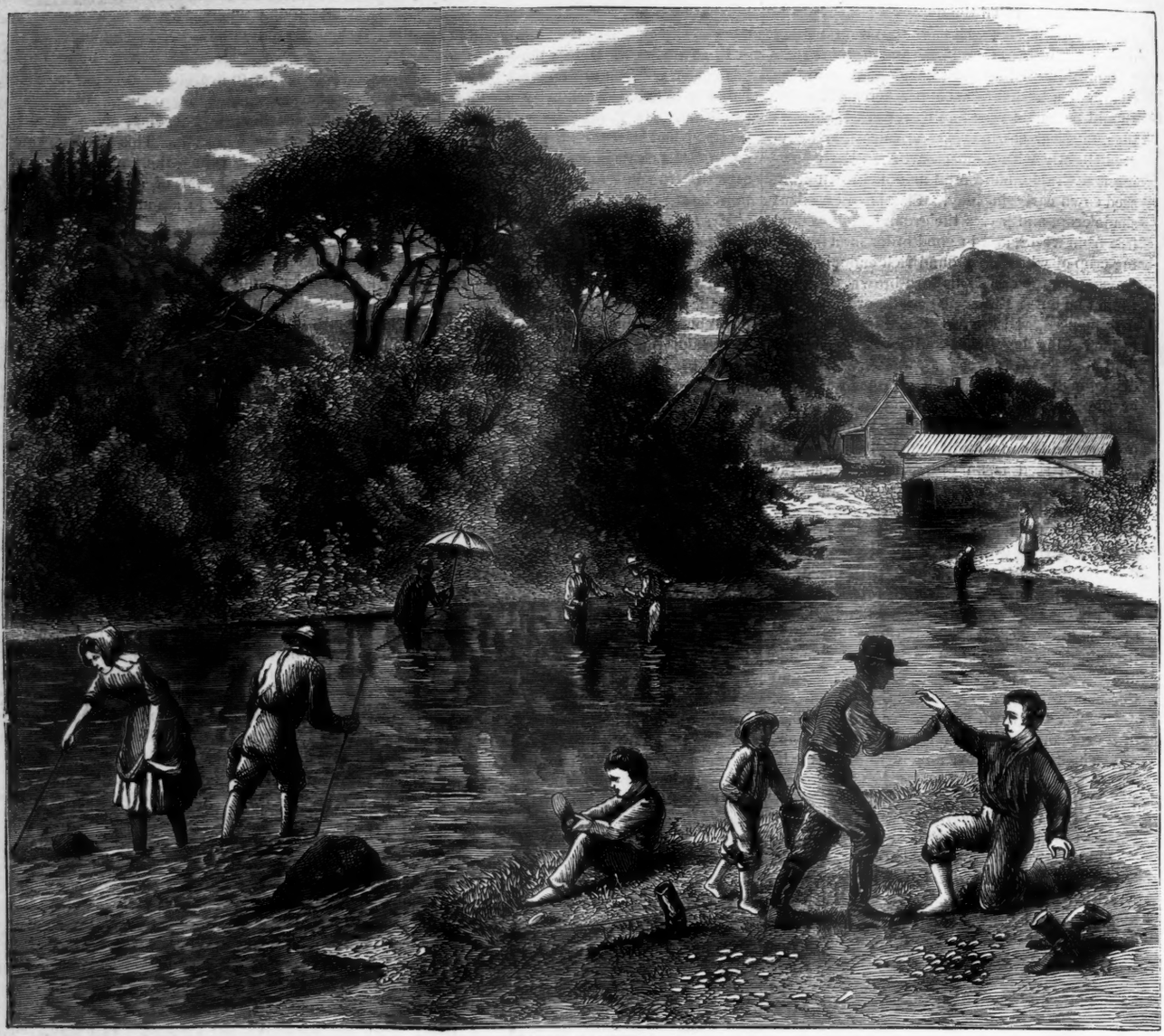
BY MRS. R. E. ROBINSON.

The pearl-producing, fresh-water clam, or muscle (*Unio*), is found in some Western streams though few pearls have yet been discovered in them. It seems that in this country fresh-water pearls are found most abundantly in the Winooski River in Vermont, not far from its source, and in its small tributaries. Within a few years much attention has been given to hunting them, and vast quantities of the molluscs have been destroyed by the merciless pearl-hunters, yet they are still found in great numbers.

The shell from which the sketch (fig. 1) was made, is five inches long; two wide; one and a half thick. It is covered with a lightish-brown skin, that upon drying and exposure to the air becomes much darker. The animal within the shell is a light pink or salmon color. The interior of the shell is pearly and iridescent, with a brownish-yellow patch near the hinge.

The clams were once found in any part of the river, but they have been hunted so much they are now usually found in deep water alone. Pearls are more frequently found in clams that live on stony or gravelly bottoms, as a grain of sand or some small foreign substance that has entered the shell forms the nucleus around which the layers of pearl are made, taking an unknown number of years to form even a small pearl. Sometimes they are taken from river-beds of clay and mud. It is said clams must be seven years old before they begin to form a pearl.

The clams move slowly from place to place, crawling edgewise, leaving a groove-like track. The small end of the clam sticks in the bottom of the stream with the large end out and open,



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PEARL-FISHING IN THE WINOOSKI.—*Drawn and Engraved for the American Agriculturist.*

out of this a portion of the animal protrudes, but at the least disturbance withdraws, and the shell closes so tight it can not be opened without being cut at both ends. When open, the pearl if any, is at once seen in the small end, imbedded in the "flap."

The instruments necessary for "pearl-hunting" as it is commonly called, are an iron rod (fig. 2) flattened at one end, with barbs cut in it

Fig. 1.—PEARL-BEARING UNIO.

to draw out the clams, a handled basket to carry them in, a stout knife to open the shells, and a box of fine cotton in which to put the pearls. Happy is the lucky fisherman who does not return home after days of toil, with this box as void of pearls as when he started. In the Winooski, the water is so dark that an umbrella is of service, especially in deep water and when the sun shines.

Sometimes the fisherman wears high rubber boots, oftener he wades into the river with bare feet and his breeches rolled high, with his basket on arm and spear in hand. He thrusts his spear into any open shell he may see on the bottom, which immediately closes, when he pulls it out, puts it in his basket, and looks for another. When satisfied with the number he has got, he carries them to the bank, where he sits down and opens them. The experienced hunter can usually tell before opening if there is a pearl inside, as only the deformed shells contain one. Often thousands of shells are opened and the inmates destroyed without obtaining a single pearl of value. Sometimes brownish ones, lustreless, and of no value are found. The white and rose-colored ones alone have the beautiful light and desirable lustre.

Probably more depends upon luck than skill. C. H. Stevens, Esq., of East Montpelier, who gave me much of the above information, is one of the most successful pearl-fishers of that region, and the one who some years ago found the largest pearl that has been discovered in the United States. He says: "The large pearl I found was in two feet of water where it ran swift. It was in the first shell I took out, and I could see the place close to it where some one else had taken out another. The pearl is $^{3}/_{8}$ of an inch in diameter, round as a ball, and of fine lustre. It is now owned by a gentleman in New York, who values it among the thousands. It was nearly in the middle of the clam by the hinge, the only one I ever heard of being found there."

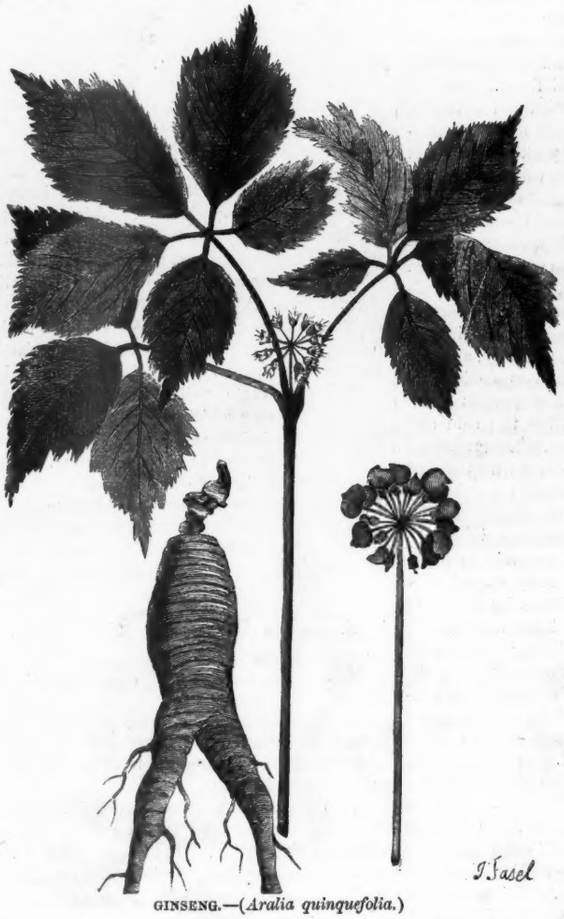
Fig. 2.—PEARL-HUNTERS' SPEAR.

For successful hunting a still day is necessary, as a small ripple on deep water will hide the clams. In shallow water it is not so important.

Upon such a day, during a "pearl-fever," it is not uncommon to see numbers of men and boys, and sometimes women, standing in the Winooski gathering the clams, or seated on the bank opening them. In warm weather sometimes, such numbers of clams are destroyed the air is tainted with their decay for a long distance.

Ginseng.

Every now and then there is an excitement about Ginseng, arising from reports of great prices received for the article. We have had several letters concerning it, especially asking about its cultivation. Ginseng is botanically *Aralia quinquefolia* (formerly called *Panax*), and belongs in the same family with the European Ivy. The fleshy root, which is from four to nine inches long, throws up a simple stem about a foot high, which bears at the top three leaves which have usually five divisions. The flowers are inconspicuous, greenish white, and in a small umbel; these are succeeded by bright red, berry-like fruits. The engraving shows the different parts very much reduced. Ginseng is found throughout the temperate portions of the country, but owing to persistent digging it is very rare except in the sparsely settled portions of the West. It flourishes in rich, cool woods, especially upon hill-sides, and as it is not found growing in other situations it is probable that it could not be successfully cultivated. Still, the experiment is worth making, as there are many plants that are naturally found only in very wet places that flourish perfectly well in ordinary garden soil. The root of Ginseng has a sweetish and somewhat pleasant aromatic taste, and is not considered to possess any important medicinal properties. Its commercial value is due to the demand for it in the Chinese market. There is a very similar plant in China, the true "*Sching-seng*," which is in that country so highly esteemed that the district in which it grows is under government surveillance. In the Chinese *materia medica* Ginseng is a universal panacea, not only curing all bodily ills, but clears the judgment and gives vigor to old age. Those who have investigated the matter regard its attributed effects wholly due to the imagination; and though the root produced in this country is not, as the Chinese have found out, the "Original Jacobs," it is no doubt just as good, being quite as harmless. It is one of those articles upon which speculators have made and have lost large sums, as the market in China is said to be very fluctuating.



GINSENG.—(*Aralia quinquefolia.*)

MARSH CALLA.—(*Calla palustris.*)

A Native Calla.

Almost every one knows what is popularly called the "Calla Lily," or "Lily of the Nile," one of our most popular and easily cultivated house plants. It was formerly called *Calla Æthiopica*, but for botanical reasons it is now put in a different genus, and is properly *Richardia*, though it popularly retains its old name of Calla, which is an ancient name the meaning of which is not known. There is to be found in the bogs and swamps of the colder parts of the country a native species—*Calla palustris*—which, if not a very showy plant, is an interesting one. It shows much more plainly than the cultivated Calla does that what popularly passes for a flower is not a flower at all, but only an appendage to the flower cluster. The engraving shows our native species (which is also found in Europe) about half the natural size. Here it is plainly seen that the flowers are crowded together upon a short stem or *spadix*. The flowers at the lower part of the cluster are perfect, while the upper ones are usually staminate only. The showy portion, an open sheath, spreads away from the flowers, while in the cultivated Calla it quite encircles and hides them. In our native plant this sheath or envelope, which is botanically called a *spathe*, is white upon the upper surface but green upon the under side; but in the African one it is white and petal-like on both sides. Our native Calla bears a cluster of red berries, each of which contains a few seeds. It can probably be cultivated in ordinary garden soil, but our only attempt, having been made in an unusually dry season, failed. It makes an excellent plant for an aquarian, being quite at home when its roots are submerged.

Marketing Produce—Asparagus—Strawberries.

BY J. R. HELFRICH.

[But few not familiar with the ways of city markets are aware how much what seem to be trifles have to do with the sale of produce. A grower may take every pains in raising his crop, but if he sends his articles to market in a careless manner his returns will be less than those of one who takes less pains in cultivating, and devotes more to preparing for market. There is nothing connected with market-gardening of more importance than the proper packing for transportation, and we are sure that this article, and others that may follow, prepared by Mr. J. R. Helfrich, 92 Barclay St., one of our most experienced commission merchants, will be of interest and value to many readers.—Ed.]

CUTTING AND PACKING ASPARAGUS.

The earliest asparagus always commands the highest price, therefore it is best to commence cutting as soon as practicable. Early in the season, when it is scarce, it will sell with a larger proportion of white stalk than it will later. When it is plentier customers demand that a greater length of stalk shall be green.

It will hasten the growth of the asparagus to run a plow, as soon as the frost is out, as near to the rows as practicable. Throw a furrow away from the plants upon each side, taking care not to wound the crowns. This will let the air and heat into the crowns and start them early.

The best knife for cutting asparagus is an ordinary 8-inch butcher-knife with the point cut square off, leaving the end about an inch and a quarter wide; this should be ground sharp like a chisel.

In cutting for very early market, cut the sprouts when they are three inches above ground; as the season advances let it grow to four or five inches. In cutting cut clean, taking all the "cullings" or small sprouts, as well as the large ones. If the weak and spindling shoots are allowed to grow they will take away the strength from the roots.

To cut, take the sprout in one hand and run the knife down close along side of it to the proper depth, move the handle away from the stalk and shove the knife down so as to sever the stalk with a tapering cut. Care must be taken not to wound the young sprouts which are coming up all around the crown. After cutting, the asparagus should be removed out of the sun as soon as possible and be put into a tub of clean water and gently stirred to wash it, after which it is laid out to drain off the water. Use none but clear fresh water, as dirty water will discolor the sprouts, and if the water has been used the previous day it will be sour and hasten fermentation of the heads. In bunching all small shoots as well as those that have crooked heads are to be thrown out. Machines of cast-iron are now used for bunching which allow the work to be done rapidly and form a bunch of uniform size; this is a matter of importance, as asparagus is of more ready sale and commands a better price if the bunches are uniform in size. The bunches should be about 8 inches long when "butted" or cut off at the butt, and the heads all even. There should be two ties, one placed about two inches from either end. The bunch must be tied so tightly that it will not loosen in handling after it has reached the market and dried out somewhat. Bass matting is the best material for ties, this and the bunching-machines being furnished by us, and we suppose by other dealers. If the bunches are to be kept over night before packing, dip the butts in clean water and stand them on end on a cold cellar bottom or upon grass or hay that has been thoroughly wet; do not sprinkle or wet the crowns or the green portions of the sprouts.

In handling the asparagus every care should be taken not to bruise the crowns or heads and to keep the crowns cool, as the gummy juice of these soon heats and spoils the whole.

In packing use crates that are 10 inches high, and if shipping from a distance put some thoroughly wet grass or moss in the bottom of the crate, stand the bunches on end, butt down, and press them so tightly together that they can not move or shift in handling. The crates should have a tight bottom and ends; the sides may be tight half-way up, the rest of the sides and the tops are slatted. This keeps the butts moist, and the tops dry and cool. Nail corner-pieces on the crates and cleats on the top at each end in order to keep the crates apart during shipment and allow of a circulation of air. Mark the number of bunches of prime and culls on each crate.

STRAWBERRIES.

Strawberry-culture is now receiving at the hands of fruit-growers greater attention than that of any other of the small fruits. Leaving the discussion of varieties, soils, and planting, to the journals, we wish to give some suggestions in regard to picking, packing, shipping, etc., which if properly observed will be of great advantage to both shipper and dealer.

The crates and packages should be neat, clean, and uniform, as very much depends upon making a good show to attract the eye of the buyer. This is an important matter, as neat, tidy, uniform crates and baskets improve the looks of the fruit, and that thus packed will sell in preference to that in the old, ungainly, and ill-shaped packages. Our first-class dealers do not like to have rough-looking parcels about their places, hence such are the last sold and consequently at reduced prices. The crates and baskets must be well-ventilated, as fruit that has sufficient circulation of air through it to keep it cool, will keep longer and be brighter than that in close packages. The round-top ventilated cup is decidedly the best in use and is being generally adopted by our most experienced fruit-growers. The crates should be slatted or otherwise ventilated, and have angle-pieces nailed on each corner, extending two inches each way, and one across each end upon the bottom. These pieces, which should be of half-inch stuff, preserve a space between the crates so that during shipment there will be a circulation of air all around them. Crates that are bound with strips of iron, when placed together in the cars or on the boats lie so close together that there is no ventilation and the fruit is spoiled. Crates containing 45 or 60 pints are the most desirable size to use. For quarts, 24 or 36 crates are large enough. When too large the crates are so heavy that the fruit is liable to be bruised by loading and unloading. The old-fashioned tight chests with tight square boxes are entirely unfit for shipping fruit and should be discarded. We advise all shippers to procure at once round-top ventilated cups or baskets and open crates, as the difference in price received for the fruit will often, in one shipment, justify the outlay.

In picking, too much care can not be taken in regard to the point of ripeness. The fruit should not be too ripe, but firm and hard. If to be sold within twelve hours after picking it can be of full color and ripe, but *not soft*. If it is to be a longer time than this on the way it should not be so ripe when picked, *i. e.*, the berry should not be full colored but a little lighter on the under side, as it will ripen on the way. Each picker is to be provided with a tray or box made of light material which will hold four to eight baskets or cups. The pickers must be cautioned to pick clean every day, as if it is not picked regularly some of the fruit will become too soft, and if these are mixed with the hard berries they will mash and spoil the whole. A single over-ripe berry will spoil a whole basket. When the baskets are filled they are to be carried to the shade to cool, or to the packing-shed to be assorted and arranged for packing. In assorting, every unripe and every soft berry must be thrown out, and the baskets or cups be well filled. The fruit should be assorted as much as possible in picking so as to avoid any more handling than is necessary. Small and inferior berries should be put in cups by themselves and packed in separate crates, which are to be marked "seconds," with chalk. Put no leaves in the bottom of the cups. Before packing set the fruit in the shade, where there is a free circulation of air, so that it may be thoroughly cooled off. In finishing off the cups turn the stem end of the berries down so as to hide the stem as much as possible. If the berries are sandy or solled, as they frequently are after a heavy rain, put them up as such, and do not face the crate off with clean and fair berries. The "facing" or "topping" of fruit practiced by inexperienced growers is pernicious, and is one of the greatest difficulties the trade have to contend with. It inspires distrust among buyers, and is often the means of injuring the sale of carefully selected fruit. A reputation for putting up good fruit when once established is invaluable to the grower, and can not be too highly appreciated, as buyers learn the marks and buy accordingly.

Have each crate well marked on each end with a card upon which is the commission merchant's name in large distinct letters, in order to insure the return of empties by buyer. Have also the shipper's name and station in full on each end to prevent errors and facilitate the return of empty packages. The large dealers furnish shipping-cards and pasters free of charge to customers, and stencil-plates when ordered.

A Lady's Experience with Roses.

Mrs. C. E. S., Baltimore, Md., sends the following:

For the benefit of the many amateur florists among your readers, and to ventilate the delight over my success in rose culture, I beg the favor of a small space.

Two years since married, and secured a house with the nicest bit of a garden attached of about 80 × 18 feet. On the advent of spring, I began to improve this heretofore neglected strip, rising at five o'clock in the morning and working until seven. To illustrate my utter ignorance of gardening at this time, I *planted* the seed of the Petunia, Dianthus, Pansy, Phlox, etc., *over two inches deep!* The labor I performed in laying out beds, borders, walks, etc., and my neighbors complimented my hobby as "neat and tasty."

After a while, I consulted Henderson, Vick, Buist, and other books, and learned how to sow seed and cultivate plants, and succeeded to my satisfaction.

But I love the Rose! Finding prices too far above my means to secure all the varieties I would like to possess, I bought a treatise on Rose-culture with a view of raising my own. After patiently going through this book, I got the idea. The author was quite learned, not only in roses, but botany in general, and Latin and Greek to a certain extent. He rather aimed to teach experienced florists, instead of amateurs to whom he specially addressed himself. Having no hot-house or other appliances recommended, I thought to do a little summer experimenting in my own way.

Last spring I procured a box 12 × 18 inches and three inches deep, and filled it nearly to the top with clean paving sand, into which I placed cuttings from my neighbors' best stocks, about fifteen in number. These were all quite young shoots, three to five inches long. The box was kept all through the summer in the most ex-

posed position in the garden, and was filled every morning with water, which kept the sand constantly and thoroughly wet. Excepting in two cases, they all lived nicely, and by the setting in of fall had roots two or more inches in length. I then potted them off singly, in sand, loam, and manure mixed, in three-inch pots. On the approach of winter, the pots were immersed to the tops in sand and covered over with brush, over which I placed a good layer of leaves and fresh horse-manure. Three weeks ago they were all exhumed, and only two of the pots found to be broken by the frost, whilst all the plants were as fresh and green (excepting the absence of leaves) as the day they were buried. Up to this time they have been exposed in a window facing south, and not one of them contains less than fifty leaves, and all have a fair prospect of budding within a fortnight.

I have learned more from an experience like the above than I gained in poring over a learned treatise. If any beginner can be benefited by it, he or she is doubly welcome.

Water-Cress Cultivation.

BY PETER HENDERSON.

When I wrote my work on Market-Gardening I must have passed over this plant too hastily, as I find more of my readers have asked to be further instructed in the matter of its cultivation than on that of any other vegetable. I have received three letters the past week, two from Maryland, and one from Virginia. In each instance the question is asked whether it is necessary to clear the sides of streams (intended for the planting of water-cress) from grass, shrubs, or weeds?

Water-cress can be best cultivated in places where the streams run through a level tract. Supposing the stream to be an average of a foot deep and six or eight feet wide running through a meadow, a good plan for cultivation is to make excavations laterally—say in beds 5 feet wide (with alleys between 5 feet), at a depth of say 8 inches, or at such a *depth as to be flooded by the stream* when it is of average depth or, when shallow, by damming it up so as to flood the beds.

The advantage of having the beds excavated at right-angles to the stream rather than parallel with it is, that in the event of freshets the crop is less liable to be washed away. The length and number of the beds excavated, must, of course, be determined by circumstances. Water-cress seeds germinate freely in earth when kept saturated; hence the beds when properly leveled and pulverized by digging and raking should be slightly flooded—enough to saturate the soil only until the seeds germinate—for, of course, if the beds were filled up with water the seeds would be washed off. After the seedlings have started so as to show green, the water may be gradually let on as they develop. Probably the best time of sowing the seed would be, for the latitude of New York, about the middle of August. When Water-cress is found growing naturally the beds can be made by setting the plants six or twelve inches apart each way. When the cultivation is once fairly begun there is no difficulty about forming new beds, as few plants grow more rapidly when proper conditions are present. If the crop is planted or sown the middle of August, it will have spread all over the beds by November. The streams being full in autumn the beds will be fully flooded so as to protect the plants during winter. It is always found wild growing best in clear, shallow, slowly-running water with a sand or gravelly bottom—and as nature is always the surest guide to all successful cultivation, the nearer it can be imitated the better the success. I find it is one of the plants the culture of which is not very easy to give by writing, as so much must be determined by the circumstances of locality. Wherever a suitable stream is at command the experiment of growing Water-cress is worth trial, especially when we know that it, in many cases, pays for a given area six or eight times more than any other vegetable cultivated, provided it can be sold in the markets of New York or Philadelphia.

The Winter Nelis.

This old favorite maintains its high reputation as an amateur fruit, and should have a place in any list of a dozen pear-trees for the garden. The illustration gives a very correct representation of the pear. It is thus described by Downing: "Fruit of medium size, or usually a little below it, roundish, obovate, narrowed in near the stalk. Skin yellowish-green at maturity, dotted with gray russet, and a good deal covered with russet patches and streaks, especially on the sunny side. Stalk an inch and a half long, bent, and planted in a narrow cavity. Calyx open, with stiff, short divisions, placed in a shallow basin. Flesh yellowish-white, fine-grained, buttery, and very melting, abounding with juice, of a rich, saccharine, aromatic flavor. In perfection in December, and keeps until the middle of January."

Along the shores of the Sound in Connecticut this pear is a solid russet, and we have never seen a specimen of any other color. The windfalls ripen in November. Those remaining upon the tree until that time may be barreled on a dry, sunny day, headed up tight, placed on the north side of a fence or building until there is danger of freezing, and then removed to a cool cellar. We have kept ours this season in the same barrels with the Vicar of Winkfield, and they have kept quite as well as that standard winter variety. At the middle of January they were quite as hard, without any evidence of decay among them. The temperature of the cellar had been regulated by a thermometer, and kept between 35° and 40°, or as near 40° as possible. By bringing a few of them into a warm room, they ripened up readily as they were wanted, and we had the pleasures of the October fruit-yard in midwinter. We want now, more than all things else in pear-culture, good winter varieties, that will take the place of the fall fruits when they are gone. Thus far the number is very limited. The Winter Nelis is entirely satisfactory, good enough to please the most fastidious taste, and keeping with as much facility as a good winter apple. The fruit room in the cellar is entirely practicable, and within reach of every farmer who has a home of his own. It will be safe to plant or graft the Winter Nelis this spring.

CONNECTICUT.

The Grape-Vines.

The sudden shutting down of winter occurred before all our vines were pruned. We found upon resuming the work this spring that with many varieties, such as Eumelan and Iona, the wood, although not dead, had not the lively look proper to it. Wherever the vigor of the vines has been weakened, severe pruning is the only way in which to recover lost ground. If vines start, fully rub out the majority of the buds and throw the strength into a few. Pruning before the leaves are well expanded will lead to bleeding; this is less injurious than is imagined, yet it is unpleasant, and if the buds are removed now the canes can be cut away later.

Forcing Lettuce in Greenhouses.

BY PETER HENDERSON.

One of the readers of the *Agriculturist* (J. C. S.) requests me to state if I can why some of his Lettuce plants become affected with a species of mildew or rust, which, beginning in the center of the plant, gradually spreads over the whole.—The disease referred to is not an uncommon one, and has of late years been quite troublesome in some sections, particularly during midwinter. I am not certain of the cause, and can offer no cure—except to advise that great care should be taken to have the plants grown freely, and without any sudden check by chilling or by the extremes of drouth or moisture. We find in the culture of plants under glass, that some species are particularly sensitive to such checks—some varieties of the Rose, for instance, if, when in a particular condition of growth, the temperature for a few hours is reduced from 65° to 40°, at night, or if a frosty south-east wind is allowed to play on the leaves for even ten minutes, or if allowed to dry so that the plant wilts, mildew will to a certainty be developed in twenty-four hours. The Verbena, Heliotrope, and Petunia are equally sensitive to ill-usage, only the trouble affecting these is of another character—when they get diseased or rusted. The microscope reveals the presence of an insect, which we presume is a consequence of the disease, just as when we find the *mildew* on the Rose. The microscope shows it to be a fungus, as beautifully developed as the Mushrooms or Toadstools—which are higher types of the same family. In both these instances it is probable that both these parasitical affections, the mildew on the Rose or this tiny crab-like insect that we find on the diseased Verbena, come only when the plant has become debilitated by disease. I am inclined to think that the Lettuce disease is also caused by some ill-usage at some period of its growth, for we find that it is rarely seen when the crop is grown in the open ground in spring or summer. The remedy suggested then when forcing is to prepare the plants carefully so that no sudden check is given—and also that the soil used on the benches be fresh, and the manure used be thoroughly rotted and well mixed through the soil. Fumigating with tobacco should also be done twice each week.

Flowers for Cutting.

Some one—we think it is Mr. Vick in his catalogue—suggests that every gardener should have a bed from which every one is at liberty to cut flowers at will. The suggestion is an excellent one, and embodies what we have long practiced! One does not like to have his show-beds cut from by others, and does not like to have visitors go away empty-handed, and a reserve bed overcomes all difficulties. We put out a few Heliotropes, Rose-Geraniums, China and Tea-Roses, Carnations and other Pinks, and *Cuphea platycentra*, invaluable for its green as well as for flowers, then sow some mignonette, Sweet Alyssum—Candy-tuft—and if there is room some Sweet Peas, and there are always materials at hand for a choice bouquet.

The Codling-Moth.—Wier's Trap.

BY C. V. RILEY.

Resolved to test Wier's trap thoroughly, in comparison with other methods of allurement, I commenced as early as the first of May to prepare a number of trees as follows: 1st, with Wier's trap, screwed on in different positions; some trees having single traps, either on the north, south, east, or west sides, and placed at

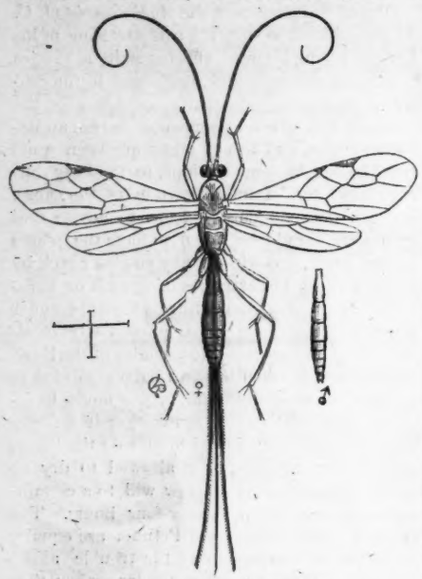


FIG. 2.—DELICATE LONG-STING.

different heights from the ground, and some having as many as three traps; 2d, strips of old sacks four inches wide, and lined on one side with pieces of lath tacked on transversely, and at such distance from each other that when brought around the tree they formed an almost complete wooden ring; 3d, bandages of various kinds of rag; 4th, hay ropes; 5th, paper bandages, made of the cheapest kind of straw-

WINTER NELIS.—(*See page* 183.)

paper, folded several times, and in widths varying from three to six inches. In order to insure the utmost accuracy, these several traps were regularly examined every twelve days throughout the season, and a careful account kept of the worms or chrysalids found under each; and where it was a question as to the comparative merits of the different traps they were placed on trees of the same variety. The results of these experiments—not to waste space with the detailed array of figures—may be thus summed up:

No Apple-worms were found until the 14th of June, and though many other insects had previously taken advantage of the shelter, *not a single Plum-Curculio was found.* While, therefore, there is no harm in having the bandages on as early as recommended last year, in ordinary seasons little, if anything, will be lost by waiting until the first of June. Where three of the Wier-traps were on the same tree, I obtained more worms than where there was but one; and where there was but one there was no difference in favor of position as regards direction or altitude, taking the season through. The lathed canvas encircling the tree secured, on an average, five times as many worms as any single Wier-trap. The rag, paper, and hay bandages allured almost as many, and either kind more than the single Wier-trap.

I hope therefore that the patentees have already realized the anticipated fortune from their invention; for, while I should be sorry to injure their chances in the least, truth compels me to state that, after a year's trial, I am not quite as favorably impressed with the usefulness of this shingle-trap as I was before trial, and am more thoroughly confirmed in the opinion expressed last year that, "notwithstanding all the theories of my friend Wier, it must always be inferior to any trap that encircles the tree." I do not wish to detract from its merits one jot, and where old shingles are abundant, and other material scarce, the former will still prove valuable for the reasons given a year ago, and Mr. Wier deserves our thanks for showing us how to use them.

Time, expense, and efficiency considered—and so far as one year's comparison will warrant conclusions—I place the different materials enumerated in the following order of merit:

1st. Paper bandages. Common straw wrapping-paper, 18 × 30, can be bought for 60 cts. per bundle. Each bundle contains 240 sheets, and each sheet, folded lengthwise thrice upon itself, will give us eight layers between two and three inches wide, and be of sufficient length to encircle most ordinary trees. It is easily drawn around the tree and fastened with a tack; and so cheap, that when the time comes to destroy the worms, the bandages containing them may be detached, piled in a heap and burned, and new ones attached in their places. If eight bandages are used to each tree during the season, the cost will be just two cents per tree, and the owner could well afford to treble the number of sheets, and keep three on each tree, either together or in different places.

2d. Rags. These have very much the same effect as paper, but are more costly, and difficult to get of the requisite length. Where they can be had cheaply, they may be detached from the tree and scalded with their contents.

3d. The Wier-trap used as recommended last year is perhaps the next most useful; but both cost and time required to destroy the worms are greater than in the first two methods.

4th. The lath belt is the very best of all traps so far as efficiency goes, but it is placed fourth on the list because of the greater cost and trouble of making. On the same kinds of trees (Early Harvest), and in the same orchard, I have taken with this belt, between June 15th and July 1st, as many as 68 and 99 larvæ and pupæ, against fourteen and twenty in the single Wier-trap.

5th. Hay-bands, on account of their greater inconvenience, I place last.

All these methods are good, and the orchardist will be guided in his choice by individual circumstances.

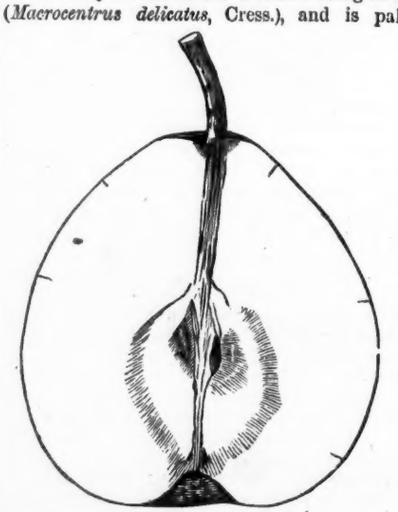
I wish to allude before closing to an apparently plausible theory advanced by Dr. J. S. Parker, of Ithaca, N. Y. In an article in the Maine Farmer for June 1st, 1872, in which nine-tenths of all the apples set in 1871 are said to have been either totally lost or greatly damaged, he suggests that the insect might be well nigh exterminated if, by united effort, we could forego one year's crop by knocking off all the young fruit. He fails to attach sufficient importance to the fact that the insect breeds in wild crabs, pears, peaches, and even plums.

PARASITES.

If we except a species of hair-snake, belong-

FIG. 1.—RING-LEGGED PIMPLA.

ing probably to the genus *Mermis*, and which Mr. P. H. Foster, of Babylon, N. Y., has found on two occasions infesting it (Gardeners' Monthly, May, 1872), no true parasite of the Apple-worm has ever been discovered in this country. I have this year discovered two. The first (fig. 1) may be called the Ring-legged Pimpla (*Pimpla annulipes*, Br.), and is of a black color. It eats its way out of the chrysalis and cocoon of the Codling-moth without having previously made any cocoon of its own. The second may be called the Delicate Long-sting (*Macrocentrus delicatus*, Cress.), and is pale



WINTER NELIS, SECTION.

honey-yellow tinged with brown (fig. 2). The unfortunate Apple-worm is probably pierced by this species while yet in the fruit, as it always succumbs soon after forming its cocoon and before changing to chrysalis — the parasite forming a brown cocoon for itself within that of its victim. Whether the parasites here described had anything to do with the scarcity of Apple-worms, and the consequent large apple crop that was harvested in many parts of the country, it were useless to speculate,

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

A Boiled Knife

Every experienced housekeeper knows that to keep the handles of knives out of hot water is one of the first lessons taught to the girls when washing dishes. Yet, from carelessness of servants or others, the handles do often get into hot water, and consequently the blades soon loosen and part company with the handle. Recently, a manufac-

A NEW KNIFE-HANDLE.

turer left a knife at this office, requesting that it be boiled as often as desired, asserting that the handle would remain firm under the treatment. The knife has stood the test. Hot water does not loosen it. Why it does not can be seen by the engraving, showing the interior of the handle and how the parts are so inseparably joined. The shank or "tang" of the blade when finished is put loosely into an opening made to receive it in the wooden handle. The two parts are then confined in a proper mold, and the opening is filled by running in a melted alloy of tin and antimony. This surrounds notches made in the shank, passes through openings in the handle and forms rivets, and also forms a jaw or clamp at the top of the shank which embraces the lower part of the blade, and also laps over and firmly holds the upper end of the handle. There is no way of separating the parts short of breaking the handle. Many different styles of these knives are made, to suit different tastes. They appear to be the "knife for the million."

What to Do with Bleeding Wounds.

BY DR. J. T. ROTHROCK.

Any one may be called upon to stop the flow of blood in an injured person, and it is well that *every one* should know how to do it.

The blood as it flows from a cut surface is of two colors, and comes from two different sources. First, that from the veins is dark, in color not unlike some of the darker cherries, and comes in one continuous stream; that from the arteries is brighter red, and leaps out in jets and spirts, each pulsation of the heart producing one of these jets of blood. The stream from an artery may be large enough to drain the blood out of the body in fifteen minutes, and may shoot out several feet from the body of a vigorous man, or it may be so small as to be unable to break out into a distinct jet, and only bubble forth with each beat of the heart. Between these two degrees there may be every variation in quantity. Of course, the more profuse the bleeding, the more alarming it is.

All that an unskilled person can be expected to do in arresting bleeding is by well-managed compression. Leave twisting of the arteries, or tying them, or closing their cavity by a pin to the surgeon. Most of these operations require the preliminary use of the knife. I may say, however, that when *the end* of a bleeding vessel can *be seen and grasped by a pair of small pincers*, the doctors still do just what good old Ambrose Paré did when he "was inspired by God with a good thought" — he took "a silk thread and tied it tightly around the bleeding vessel." And so ever after the horrible burning with hot irons and with boiling oil, the stuffing of the wound with drugs to stanch the flow of blood could be dispensed with.

Wounds made with a sharp-edged instrument bleed most freely; those bruised and torn less so. Sometimes the mere position of a limb may stop even arterial bleeding, providing it is not from a large artery. For instance, an injury at the wrist possibly may give no alarming flow of blood while the arm is elevated, or one of the ankle if the leg is raised high as possible—so that the blood in the arteries must run up-hill. Application of cold to the injury—ice or snow—may remove the cause of fear if the accident is not of serious character. So, too, bleeding long continued may stop of itself, providing the exhaustion so induced render the heart unable to force blood through the vessels and out at their open ends.

In adapting pressure to the stoppage of any given current of blood, we always endeavor to find bone to press against; affording thus a solid basis, it makes the pressure the more efficient, and does it with less pain to the other portions included in our constricting bandage.

We will begin with the head. There are a number of points at which an artery may be cut which will cause alarming (to the bystanders) though usually not dangerous bleeding. Just before the ear is one such spot; just behind it is another. It so happens that we have in either of these places the solid bone underneath, and pressure here is generally effectual. [To illustrate the subject and show where to make compression, we borrow a figure, showing the arrangement of the muscles, from J. Dorman Steele's "Fourteen Weeks in Human Physiology," a clever work recently published by A. S. Barnes & Co.—ED.] Suppose, as in the figure, at a spot there covered by the bandage, in front of the ear, we find a cut needing our care. Take a bandage six yards long and two inches wide. Roll it from each end, as represented in figure 2, so that on either side of the center there shall be an equal length rolled up. This is what surgeons call a "double-headed bandage." Put the center under the chin and, supposing the injury to be on the left side, bring one head of the bandage up to the cut on that side from the chin; carry the other head from the chin up over the cheek on the right side, across the top of the head, down the left side to the cut; then pass the lower end under the upper, carry the former backward around the head, and take the upper end forward, and so around the head to meet and pass the first end. This, as you will see from the figure, makes a sort of knot immediately over the cut. Put a thick pad of muslin tightly folded under this knot, and as you draw upon the ends of the bandage it will press the artery down solidly against the bone.

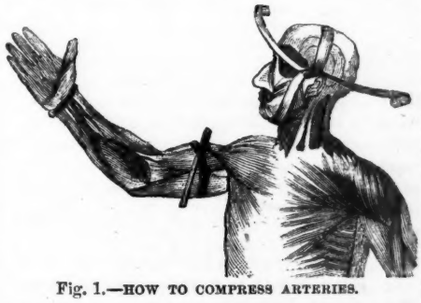


Fig. 1.—HOW TO COMPRESS ARTERIES.

Continue the turns of the bandage in the horizontal direction until they again meet over the cut, change the direction again so as to have the bandage run around the head vertically, and immediately over the first turn you took. And so continue until you have made a sufficient number of knots to exert firm pressure. Draw the bandage tightly at each turn, and when all is on sew or pin the ends. You have now a "knotted bandage." This general form of bandage will act well at almost any point on the head, and with a little effort at learning any one can master its apparent difficulties in a few minutes.

Fig. 2.—BANDAGE.

Suppose we have a *vein* bleeding from that most alarming of positions—*i. e.*, the side of the neck. The blood flows in one continuous stream. Pressure here may even stop this one, and, as in all injured veins, it should be exerted either immediately over the injury or on the farther side of it—that is, on the side most remote from the heart. Surgeons sometimes even in these days do open the jugular vein, and after allowing what blood they wish to escape, close the opening and prevent further loss of blood by pressure. In the jugular vein, however, we must bear in mind one thing more. In it exists the special danger of air being carried from the end of the opening nearest the heart into the cavities of the heart. The size of the vessel and its nearness to that central organ readily account for the unusual danger here. Hence, then, whilst we are exerting pressure with our fingers, or fingers and a compress of muslin, over the injury, and at its further edge, pressure should also be applied on the other side to prevent admission of air, or we may hear a peculiar, never-to-be-forgotten gurgle, and find a little later that our patient has gone. Even if the blood come from an *artery* in the neck the effect of compression in the same way might be tried; but usually nothing short of an operation, and often a most serious one, by the surgeon can be of any avail. Indeed, life may ebb out with the flowing blood before medical help reaches the spot.

(TO BE CONTINUED.)

Rag-Bags.

"Are you housekeeper enough to keep a rag-bag?" asked one of the "lights of literature" (whom the poet Whittier compliments as a "capital housekeeper" herself), as she gathered some scraps she had been scattering upon my carpet.

"I certainly should not be much of a housekeeper without a rag-bag," I answered, as I took her pieces and carried them to the calico bag mother gave me when I began housekeeping.

RAG-BAG.

Not keep a rag-bag! Why, then, what becomes of all the little scraps and garments worn out past all repairing? One woman buys all her sewing materials—needles, thread, silk, tape, etc.—with the savings of her rag-bag. Many of us trade off our rags to peddlers of tin-ware, and so keep good our stock of pans, dippers, and basins.

Sometimes it seems best to have several of these bags; one for white rags, one for colored-cotton and linen rags, and another for woolen scraps. It is well to have also a large bag (a paper flour-bag if you please) in a convenient place to receive torn and crumpled papers. In some parts of the country it does not pay to keep white and colored rags separate, as one gets no more for the white rags than for mixed. In other places, white rags command a much better price than mixed ones.

Persons who make rag-carpets would do well to put every rag picked up which would work into a carpet into some receptacle devoted to miscellaneous carpet-rags. These would help toward a carpet faster than one might suppose, and if they were stripped up at the time of putting away, a carpet would soon be "well begun;" and "well begun is half done."

The rag-bag should hang in some near and convenient place. Mother's always hung in the kitchen stairway, and I have followed her example. A closet opening from the sitting-room or kitchen is a suitable place for the rag-bag. When this bag is full it is heavy, and should be hung from two nails. A doubled piece of cloth five or six inches long sewed upon one side of the top of the bag, with two button-holes (see diagram) for hanging it upon two separate nails, gives a firm bag that will not be likely to tear away from the nail. When you get a good calico rag-bag of this description you will not be likely to throw it in with the rags when you sell them. Many women use only old bags which they do not care to keep back when

disposing of their contents. But there is great comfort in a strong, tidy, well-hung rag-bag.

A smaller, ornamental scrap-bag hanging near the sewing-machine is a great convenience. This can be emptied into the larger bag every day or every week.

Bags for different kinds of pieces—one for pieces of worsted, one for unbleached cotton, one for bleached cotton, one for linen pieces, one for scraps of silk, one for bits of velvet—all help toward order and comfort in housekeeping. These may be large or small, as needed, and may be as tastily made as you please. They can be laid together, labeled if you like, in drawers or trunks, or hung in rows in your closet. Crocheted cotton bags are much in vogue; but, dear girls and women, run up gingham and delaine and calico bags instead, I pray you, and give the time stolen from crocheting to something that will yield a mental or physical gain. Better play ball, or climb the hills, or read history and philosophy, than bend over patch-work embroidery or crocheting when you could be employing yourself in a more healthy manner. So much for rag-bags. AUNT JANE.

Home Topics.

BY FAITH ROCHESTER.

THE RECIPE-BOOK.—The public seemed taken by surprise when Marion Harland, the story-writer, published her "Common-Sense in the Household." What could she know about housekeeping? Yet her recipe-book is probably the most popular one now in use. It is a great mistake to suppose that a woman who is a genius in practical cookery is the best person to instruct a novice. Experience is a good thing if good common-sense goes with it; you can find women who have been engaged in cooking daily for a score of years, but who do everything in about the poorest way possible.

Just before I was about to assume the care of my mother's housekeeping for several weeks, I hunted up a recipe-book in a city where I was waiting half-an-hour for a railroad train. I selected one written by a "practical housekeeper" of twenty-five years' experience. The author said she was induced to make the book because of a conviction that a recipe-book written by a practical housekeeper was much needed.

But I quickly quarreled with this recipe-book. I had made bread pretty successfully with my mother at my elbow, but when I was left alone all my fancied skill was gone, and I wanted help. In vain did I seek it from my new book. It said, "The day of hop-yeast has gone by," and taught how to make bread only with water-risings!—and that in such vague terms that no novice could hope for success in following them, unless by pure "luck." When I wanted to prepare beefsteak for the table she only told me how to fry it!

Miss Beecher's Recipe-Book has proved very helpful to many young housekeepers. In some respects it seems rather behind the times (I write with one beside me published in 1864. A new edition, altered and improved, was promised lately, but I have not heard of its publication). There is much general information about marketing, cutting up and preserving meat, remarks about healthful food and drink, convenient utensils, care of the sick, etc.

Mrs. Cornelius's Recipe-Book is much liked by many. I have not used it. There are others in common use, but none seems to meet with such general commendation as Marion Harland's. "Common-Sense in the Household" is its name. Its cheerful, chatty style is quite "taking." I see that a "kitchen edition" has been published, with strong oiled covers, and with blank pages for copying recipes. Get this edition by all means if you purchase a copy. You will find that the author did not know everything, any more than we do.

In her directions for making "bread-sponge" (plain) she gives the ingredients thus: "One quart of warm water; six table-spoonfuls of baker's-yeast; two table-spoonfuls of lard; two table-spoonfuls of white sugar; one teaspoonful of soda; flour to make a soft batter." I can not help shaking my head over the lard and the soda. The very best bread I have ever tasted has been made every time (I am thinking now of three different housekeepers each of whom makes *perfect* bread) without either of these ingredients, and it has been so sweet in its own sweetness as to need no sugar. But they mixed with new milk, I must confess. If the yeast is really good, I can see no possible use in putting in soda, unless the presence of the sugar is pretty sure to cause acidity. Better leave out both, and secure sweetness by greater care.

Other criticisms might be made, but it is not worth while. I am glad to have the book, and it is consulted here almost daily. It would be still more useful to those who do much fancy cookery. Yet there is no lack in the more practical departments. The author does not take it for granted that her readers already have "judgment," but gives very plain directions about putting things together, etc.

"The Health-Reformer's Cook-Book," by Mrs. Lucretia Jackson, is very sensible, though very small. It gives a good and pleasing variety of recipes, which one may follow without conscientious scruples about doing injury to her family.

LOOK OUT FOR COMFORT IN HOT WEATHER.—Is there a piazza or porch over at least one of your doors? No? Can not you supply the lack immediately? Piazzas are more needed than parlors in summer. Women need more fresh air and sunshine. The more we get of it the more we want; but we sometimes get so in the habit of stepping round and round in an in-door treadmill, that we almost lose the instinct for light and air. Almost all of our sewing ought to be done on the piazza when the weather is bright and the sun is right. If this were carried out the world would gain in neighborliness as well as in good health. We ought to have more low and easy benches under the shade-trees, and some of us should suggest to our "men folks" the need of more trees. We can carry out cushions when we need them.

The best place to take a nap on a warm summer day is in a hammock swung up in the shade somewhere out of doors. Hammocks of different kinds can be purchased in most cities for a few dollars each. They are especially desirable for invalids; but we should probably have fewer invalids if hammocks were more used by hard-working people who need an hour of quiet out-door rest every summer day.

ABOUT MAKING CAKE.—Success in this art depends much upon the method of putting the ingredients together. In the first place, you must have good materials—nice flour, fresh eggs, good sugar or molasses, and good butter. No flavoring will atone for the use of rancid butter. Beat the eggs thoroughly, keeping them as cool as possible. The nicest cakes are made by beating the yolks and whites separately. In that case beat the whites upon a large plate, and do not give over until you can cut the froth in pieces with a knife. Beat the yolks in an earthen bowl until they cease to foam and begin to look a little thick. The whites are the last thing to put in your cake, and keep them cool while they wait. For my part, I seldom beat the whites and yolks separately, for only the very plain kinds of cake form a part of our every-day fare; but the plainest cake is excellent if carefully made and baked, and if of good materials.

Never use unsifted flour if you would have cake, or anything else, as *light* as possible. When Graham flour is used for cake, it should be sifted, and the bran can be mixed again with the sifted flour. If baking-powder is used it should be mixed with the flour and sifted with it. The more thoroughly these are mixed together before putting with the other ingredients of the cake, the more fine and even will be the pores of the cake when done.

Roll the sugar with a rolling-pin if it is lumpy in the least. Warm the butter a little if it is hard, but do not melt it.

The butter and sugar go together first, and should be stirred or beaten—"with a silver or wooden spoon," we are always told. I wonder if there is any sense in this direction. I mean to test it some day; but I usually stir with a silver-(plated!) spoon. Stir the butter and sugar to a cream considerably lighter colored than it appeared when you began to beat it. Then add the eggs—only the yolks at this time if you beat the whites and yolks separately. In the latter case, keep the whites cool, and put them into the cake the very last thing. Beat the eggs in with the sugar and butter thoroughly before going further. Then you may put in the milk, with the soda, if "soda and cream-of-tartar" form a part of the recipe. If flavoring or spices are used, they come next in order; then the flour, mixed already with baking-powder or with cream-of-tartar. If the whites of eggs are waiting, they must be thoroughly stirred in at the last moment. When all is well mixed together it should go into an oven that is "just right" for it.

Poor little novice! How can you "use judgment" if you have none to use? Well, practice on the plainest cakes while you cultivate "judgment." The cake should rise to its full height before the crust begins to harden. If you fear that the oven is too hot, slip a grate under the cake (if it stands upon the bottom), and cover the top with a paper. You can turn the damper so that no more heat will go into the oven for a few minutes, if you sit close by to turn the damper back at the right moment. If the oven cools suddenly, by an open door or any other cause, before the cake is done, the cake may fall.

To tell when the cake is done, pierce it with a clean, fine straw (one broken from a clean broom is best) in the thickest part, and if nothing sticks to it the cake is done.

Last summer I heard a housekeeper boasting that she never used recipes, and she was a woman who generally has "good luck" with her baking, I presume. That is, she seldom makes an absolute failure, but she quite as seldom reaches any high point of attainment. It often becomes necessary for us to vary a recipe in some respect if we use it at all. At least, it is so in the country, where we depend upon our own hens for eggs, and our own cows for butter and milk. This can be done safely if a few general principles are remembered.

Eggs are not *necessary* to make light cake. With baking-powder (seldom more than a teaspoonful for a single loaf), or with soda and cream-of-tartar exactly measured (always exactly half as much soda as cream-of-tartar), lightness may be insured, with reasonable care in other respects.

That the cake may be tender (or "short"), cream or butter becomes essential. New milk will answer for shortening if the cake is to be used with cream or canned-fruit dressing for a dessert. Many kinds of cake that are sweet to the palate are positively wicked to the stomach, they are so saturated with "grease." A table-spoonful of butter with half a cup of milk is really enough shortening to make any single moderate-sized loaf of cake "tender."

That the cake may be sweet, we use sugar or molasses, or both together. To get some desired flavor we use spices or extracts in small quantities. I have heard persons of weak digestion complain of the cloves or the cinnamon or nutmeg used in cake. Strong flavoring seems to me as vulgar as the use of strong perfumes. They are not *necessary* to good cake, and should be used with delicacy.

It is the safest way, especially for the inexperienced, to follow good recipes accurately, but a person who has some knowledge of the chemistry of cooking may vary these or invent others without much risk of failure. In saying this I do not mean to justify the old loose way of putting things together pretty much as it happens, "a little" of this and "a pinch" of that, without much idea of how it will all "turn out."

Steamed Corn-Bread.—By Mrs. C. W. B.—One quart corn-meal; one pint flour; one quart sour milk; one teaspoon salt; one teaspoon soda; half-cup molasses. Mix well. Steam three hours. This is very nice for dinner at any time, particularly with pork or sausages.

BOYS & GIRLS' COLUMNS.

The Menagerie Prizes.

If you have read about "Our Menagerie," you will have noticed that some words are printed in *Italics*. There are fifteen of these words, and these form the subject of the prize. Ten prizes will be given—five to boys and five to girls—for the best articles written upon these words. They are mostly words not in use in common conversation, as they mainly belong to natural history, but they are words that every intelligent person should know all about, and the looking of them up, and the thoughts they may suggest, will be very useful to you, even if you do not win a prize. Of course you will have to consult dictionaries and other books, and ask questions of older people. I do not care how you get the information, if you only come at it somehow and write it down, as in that case you will probably never forget it. Take these words as texts, and write down all that they suggest to you. I give the words and some hints to help you.

1. *Amphibious.*—The meaning of this has already been given. What animals not enumerated in "Our Menagerie" are amphibious? What shell-bearing animals?

2. *Mammals.*—What are these? What animals are not mammals? What animals that are sometimes called fishes are mammals?

3. *Carnivorous.*—Name some carnivorous animals. What are animals that are not carnivorous called? What is man in this respect?

4. *Menagerie.*—The meaning of the word, and what language is it from?

5. *Vertebrate.*—Definition. Mention ten widely different vertebrate animals. What are those not vertebrate called? Mention some.

6. *Locomotive Appendages.*—Mention all the different kinds of locomotive appendages that you can think of.

7. *Pachyderms.*—What are they? What useful domestic animals are pachyderms?

8. *Hemisphere.*—Give definition and illustration from geography.

9. *San Diego to Monterey.*—Upon what ocean did I sail, and in what direction? Tell what you know about these places.

10. *Lustrous.*—Meaning and examples of things that are lustrous.

11. *Esquimaux.*—What are these people? Where do they live? What noted travelers have visited them? What one was lost?

12. *Whale.*—Where found. For what hunted.

13. *Icebergs.*—Describe.

14. *Domesticated.*—Meaning of word. Name all the domesticated mammals you can think of.

15. *Walrus.*—In my account of "Our Menagerie" I had not space to describe the Walrus. Let us see who will give a description good enough to publish.

CONDITIONS.—All competing for prizes must send their articles directed to "The Doctor, 245 Broadway," and they should reach me by June 1st. In order to make allowance for mail delays, I will give five days' grace, and none that come after the last mail on that day will be opened.

The *first* prize for boys and girls each will be a large Worcester's Dictionary. The others will be good and useful books.

Each article must give full name and age, as the age will be considered in making up the awards. Of course you will have to consult books, but I expect each one to give the facts in his or her own language.

The time is short, but there are good working evenings in May, and I expect a splendid lot of responses from my young friends. THE DOCTOR.

Aunt Sue's Puzzle-Box.

CROSS-WORD.

My first is in ocean but not in bay.
My next is in daylight but not in ray.
My third is in unit but not in one.
My fourth is in chase but not in run.
My fifth is in eagle but not in crow.
My sixth is in sprout but not in grow.
My seventh is in Spain but not in France.
My eighth is in sword but not in lance.
My ninth is in burning but not in fire.
My whole is what each one should strive to acquire. CLAYTON COLE.

CONCEALED FURNITURE.

1. Yours is the nicest oven I ever saw.
2. Tell mother that Abel got his tobacco to-day.
3. I can not walk to your house, you live so far off.
4. I should be debased in my own estimation.
5. Uncle Ben churns regularly every day.
6. The man left his tools in the garden.

CHAS. W. S.

DOUBLE ACROSTIC.

The initials and finals name a powerful country.

1. A post-office in Maine.
2. A post-office in no less than a dozen different States.
3. A river in the West.
4. A river in North Carolina.
5. A river in Europe.
6. A river that rises in Minnesota and empties in the Mississippi. JES.

ANAGRAMS.

1. Hail to its pies.	6. Peril its aim.
2. Got real mice.	7. Go, Montreal coin.
3. No tacit one can.	8. Victim run once.
4. A ship enters.	9. Greet one rain.
5. Able items.	10. Is't regal I am?

PATCHES, CUTTINGS, AND FRAGMENTS.

1. Half of one city and the whole of another make an insect.

2. A girl's nickname, a boy's nickname, and another nickname transposed form an animal.

3. Turn a mischievous animal into a stupid one, and *vice versa*, by changing their heads.

4. Take the whole of one coin and part of another, to make a third coin. ADOLPH M. NAGEL.

ELLIPTICAL SENTENCE.

(Supply the blanks with words pronounced alike but spelled differently.)

Will Evans went to see a certain party married, and was asked by his friend the —— to —— him about the ——if he thought it ——. N. TRAVIS.

NUMERICAL ENIGMAS.

1. I am composed of 24 letters:
My 24, 18, 10, 13, 14, is to be carefully guarded against.
At my 14, 7, 8, 22, 3, everybody is welcome.
My 9, 11, 15, 23, 22, is painful to the eyes.
My 2, 22, 1, 12, is a metal.
My 5, 4, 20, 21, 19, 6, 17, is a position.
My 4, 16, is a pronoun.
My whole is a proverb. C. M.

2. I am composed of 11 letters.
My 5, 6, 6 is where my 7, 9, 6 is often found.
My 6, 2, 2, 4 is a corner.
My 8, 5, 6 is a receptacle.
My 3, 2, 10, 11 is much used by dressmakers.
My 7, 10, 9, 1 is surly.
My whole is a bird. REEN ROSS.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

ARITHMOREMS.—1. Tenement. 2. Endow. 3. Ooze. 4. Osier. 5. Eyelet (I-let). 6. Extend. 7. Iowa. 8. Sieve. 9. Arm. 10. Six.

NUMERICAL ENIGMA.—Comfortable.

CROSS-WORD ENIGMA.—Milwaukee.

PI.—Content is the true Philosopher's stone.

SQUARE WORDS.—

1. WORD	2. HOLD
ODOR	OHIO
ROTA	LINE
DRAW	DOES

PUZZLE.— Sword, word, rod, O!

HIDDEN CITIES.—1. Easton. 2. Saratoga. 3. Salem 4. Batavia. 5. Charleston. 6. Dover, Andover.

About Aunt Sue's Prizes.

Perhaps some of you would like to know how we are getting along with the prize competition. I have already (March 7th) received a great many specimens, but am sorry to say that four-fifths of them have gone into the scrap-basket; some as utterly senseless, and others with an extra *w*, or an *n* short, or some other letter missing or over. Let me tell you how I proceed. I first read the transposition, and if there is "no sense to it" I pop it into the basket; if it is pretty sensible—for instance:

"A little new book! Can I have it? Try hard; no one will succeed with ease. He merits it who is earnest in will.—Mr. N. M. Mertenn"—then I study its merits, somehow thus: "That signature is rather far-fetched; however, there might have been a 'Mr. Martenn' in some quarter of the globe, somewhere. The sentence is pretty good—how is it with the number of letters? Ninety-four; so far right. A's all right; l, l, t, e, n, right; w's and s's wrong; so *that* won't do."

Those that are sensible and correct I file away for future reference; and about May 20th we shall decide which are the best six. Should there be a dozen equally good I haven't the least doubt in the world but what I can coax O. J. & Co. to double the prizes. I have received one sample to which I must object on account of its inelegance, though it answers the requirements in other respects. It is not of a kind I should like to publish.

I am sure that TENN can do better. Now, my dear puzzlers, I hope these hints will make you very careful. AUNT SUE.

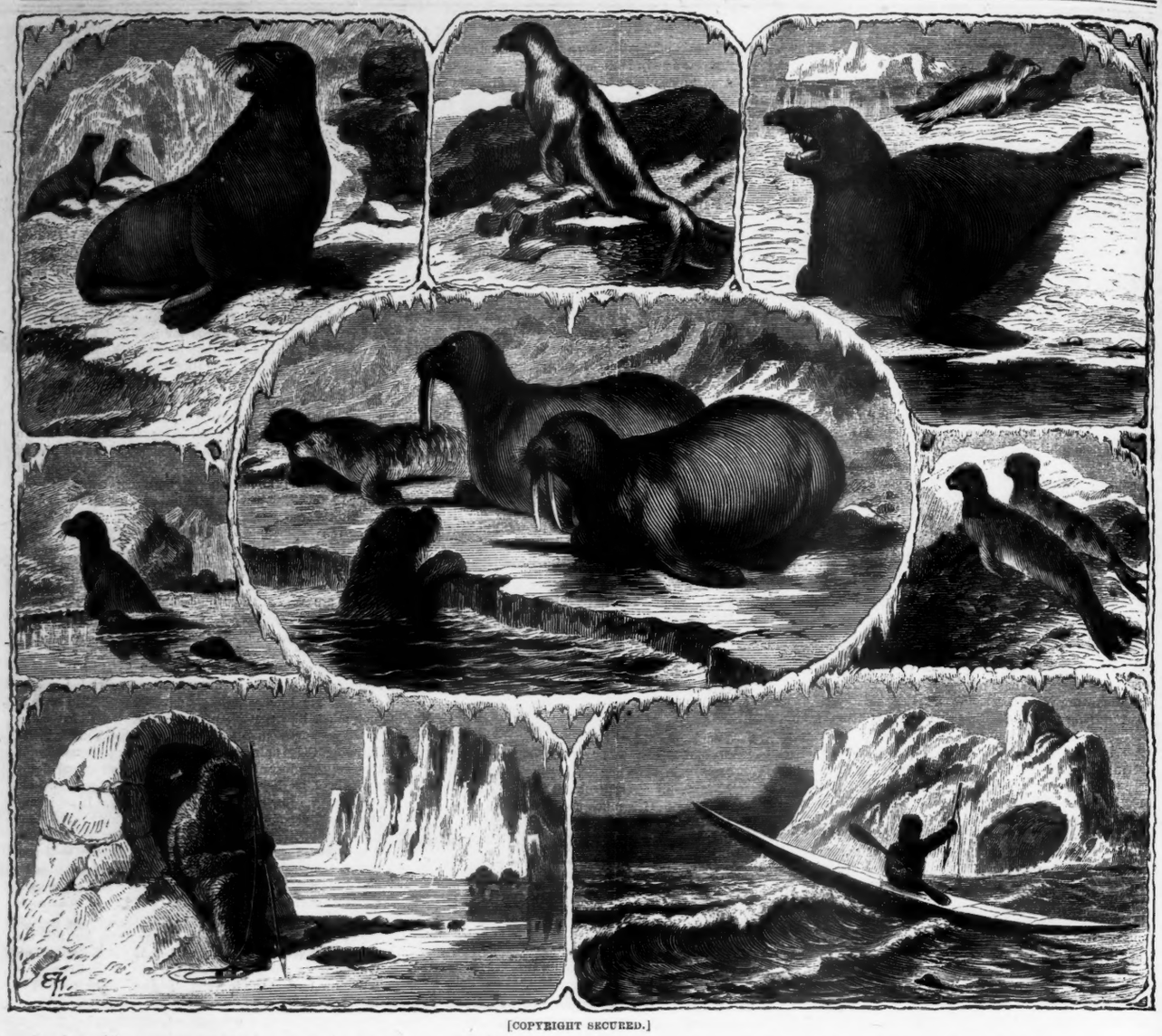
Our Menagerie.

Barnum is starting out with his great show of beasts, and doubtless many of our boys and girls will see his collection of rare and strange animals. But many more will not see them, so I propose this month to have a little menagerie of our own. What animals shall we choose? Perhaps the best will be those that you see and hear the least about. So we will take some less-known animals of the Seal family. I see that Barnum has two of these, a Seal and a Sea-Lion, but they are very difficult to keep, especially in hot weather, as they are natives of very cold countries, and he may soon lose them.

The members of the Seal family are all *amphibious*. You will think that a pretty hard word to begin a description with, but it is one in rather common use. We get it from the Greek words for *both* and *life*, and it is applied to those animals that live two kinds of lives—one in the water and the other upon the land. If you ever have occasion to use the word, do not make the mistake of the conceited and ignorant showman, who described the Hippopotamus as "an *amphibilious* animal, ladies and gentlemen; so called because it can't live in the water and dies upon land." The Seal family are all *mammals*, and are *carnivorous*—words which I do not intend to tell you the meaning of, for a reason you will see before I get through. So with other words I shall use. Just notice the words that are printed in what is called *Italic* type, and you will see why I have them so printed, and why I do not explain them as I go along. Our *menagerie* is a small one, and we must get out of it all the instruction possible. The seal family have long bodies, which are very limber and supple when we consider that they are *vertebrate* animals. Their striking peculiarity is in their *locomotive appendages*, which are very different from those of most animals. The forward two, or arms, are short, and so enveloped in skin that they appear like paddles or flippers, the fingers being concealed. The hinder limbs are covered with skin so as to look much like the tail of a fish, the long toes being joined by a web such as we see in most aquatic birds. Although these animals are capable of rapid motion in the sea, the most of them make but an awkward figure upon land, as they move by wriggling the body, and aid their progress by the use of their flippers. If their motion is not elegant, it is often astonishingly rapid when we consider the size of the animals. Living mainly in Arctic seas, the animals of the Seal family are well protected from the cold by a very thick layer of fat immediately beneath the skin, and the skin itself has usually a double coat of fur, which when wet lies so close as to be really water-proof. Some of them, such as the Walrus, look as if they belonged to the *Pachyderms*, but this you will find, if you examine the matter, is not the case. This will do for a general description of the family, and we will now look at the individuals in our collection. The best known is the

COMMON SEAL,

which is the lower right-hand animal. This is found in the waters of both *hemispheres*, preferring the colder regions, though it often finds its way into mild climates. This seal is usually about five feet long, sleek and smooth, with fur yellowish-gray variously marked with brown. In going from *San Diego* to *Monterey*, I once had a fine chance to see these animals. Droves of them would be seen with their heads above water, and as the steamer approached would stare at us with their great, *lustrous* black eyes, and then disappear beneath the water. Seals are hunted for their furs, which are very valuable, as well as for the oil which their bodies furnish. Seal-fishing used to be carried on in small vessels, and was formerly considered very dangerous; but now steamers are built purposely for the business, and the work of catching them is so much easier that it is feared they will soon all be destroyed. The seal is almost necessary to the existence of the *Esquimaux*. What all the products of the land are to us in furnishing us with heat, light, food, and clothing, such the seal is to the Esquimaux. The fat or blubber of the animal is burned in stone lamps, and furnishes heat to both warm the hut and to cook the food—though the Esquimaux cooking is little other than thawing, as they prefer most of their food raw. You would not like to live a long while with the Esquimaux, where raw Seal and Walrus are the common food, and a piece of the lip of a *Whale* chewed raw is considered the finest possible dessert. The Seal being of such value to the Esquimaux, a great portion of their industry is devoted to catching it. At the very lowest portion of the engraving are shown the summer and winter methods of Seal-hunting. The picture at the right-hand you will know is the summer hunting, as the water is not frozen. The hunter is fastened into his peculiar canoe—woe to him if he upsets—and goes about among the dangerous *icebergs* to hunt for Seals, which he captures by the use of a harpoon attached to a line. In



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ANIMALS OF THE SEAL FAMILY.—*Drawn and Engraved for the American Agriculturist.*

the Arctic winter the sea remains frozen over for many months, and a different kind of hunting has to be followed. When a Seal has been under water for a long time it must come to the surface to breathe. If there is no natural opening through the ice it must make one from below, and these seal-holes or blow-holes are well known to the Esquimaux, who take advantage of them in hunting the animal. They know that sooner or later the Seal must come up to "blow," as the sailors say. Time is not so valuable in those icy regions as it is with us, so the Esquimaux "takes his time." Clad in the skin of several seals, he goes out to hunt others, his weapon being a peculiar spear attached to one end of a strong cord, made of seals' sinews, the other end of which is usually fastened to the hunter's body. He puts up a snow shelter to protect him from the winds, takes his place upon a snowseat, and waits. When the Seal comes up to breathe, in goes the spear with unerring aim, and then comes the struggle to decide whether the Seal shall drag the Esquimaux into the hole, or the Esquimaux shall pull the Seal out of it. The hunter is so skilled in bracing himself, and understands the matter so well, that he is almost always the conqueror, though stories are told of an opposite result. When the Seal-holes are covered by deep snow they are very difficult to find. Here the dogs are of service, and by their aid, and by probing with a spear, the position of the hole is found. The hunter does not remove the snow from over the hole, as that would alarm the Seal, but he waits and listens, and when he hears the breathing of the Seal darts his spear down through the snow. Very much like shooting in the dark, you will think, but long practice, and the knowledge that life with them depends upon Seal, make these people so expert that they rarely miss. Seals are very intelligent, and are readily *domesticated*, when they show a great deal of attachment to persons, and can be taught many tricks.

THE HARP SEAL,

the central, upper animal, is one of great beauty. It is abundant upon the coasts of Greenland and Iceland, and, unlike the common Seal, does not often go upon the land, but prefers floating ice. Its color is a very delicate, grayish white, upon which are two bands of a deep black, which run along the body and unite over the back, forming a marking resembling somewhat in shape an ancient harp. This peculiar mark is not seen in perfection until the animal is five years old. At the left of the Harp-Seal we have the

SEA-ELEPHANT,

or Elephant Seal, as it is sometimes called. They are huge fellows, having been caught as large as thirty feet in length, and very productive of oil. They belong to the Southern Hemisphere, and move north or south, according to the season. They are very fond of going inland and hunting their food in fresh water. They are called Sea-Elephants because they are enabled to elongate their noses in such a remarkable manner that it reminds one somewhat of the trunk of an elephant. When attacked, these fellows make up horrible faces, and if this does not drive away the enemy—why, they go away themselves, as, notwithstanding their huge bodies, they are poor fighters.

THE SEA-LEOPARD,

or Leopard Seal, so far as known, is also peculiar to the Southern Hemisphere. It is mainly remarkable for having no visible ear, and for the white spots upon its gray body. Although it has long been known, there is but little to be told about it.

THE SEA-LION.

This is a regular sea-monster, which grows to the length of fifteen feet, and is very common on the Pacific coast. It is a very curious sight to see these huge fellows wriggle themselves out of the water and on to the slippery rocks. When their hair gets dry it is brown, although they look black when wet. I have seen dozens and dozens of them upon the rocky islands of the Pacific sunning themselves. Every now and then they will throw up their heads and give a cry, which is no doubt musical to them, but to us sounds very much like a howl of distress. They are not very ferocious, but will fight to defend their young. I was once out sailing on the Pacific, and stopped at a large rocky island about thirty miles from shore. We surprised a party of Sea-Lions, which rolled off into the water with great dignity. But one of the sailors was spry enough to catch a very young one before its mother could take it to the water. Such a funny, chubby thing as it was, not much larger than a sucking-pig, and about as fat! It seemed strange that such a helpless little lump could ever grow to become a monstrous Sea-Lion. After much persuasion, the sailor let it go, and I hope it found its mother. Don't you?

THE WALRUS.

This is the central figure in our menagerie, and one of the most interesting. You will know it if you ever meet it by its enormous eye-teeth. As I have taken up much space in telling you about the other animals in the menagerie, I propose to let you tell me all about the Walrus. Just read the article headed "Menagerie Prizes," and you will know all about it. THE DOCTOR.

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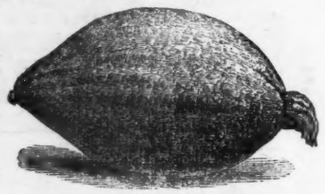


A New Squash.

I have a new Squash for the Public (see reading matter on page 64, February No. of *American Agriculturist*). Here is what is said of it:

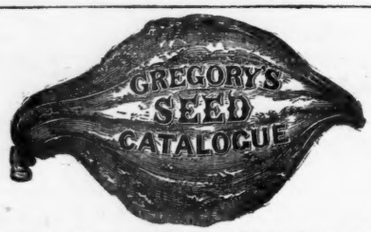
Hon. Marshall P. Wilder writes: "I have tested the Marblehead Squash. For solidity and richness, I have seen no squash that surpasses it."

Dr. George B. Loring writes: "I have tried the squash. It is delicious. I have seen nothing equal to it since the palmy days of the Marrow."

Paschal Morris, Esq., writes: "I have had the squash thoroughly tested by two of the best housekeepers in these parts, one in Philadelphia and the other in New Jersey. One reports that it is the nicest squash she ever cooked; the other, that it made the nicest pie and pudding she ever tasted. Personally, I would say that *I should regret if it was any better*, as there might be danger of eating too much."

It is a very late keeper and good cropper. I have named it the Marblehead Squash. In size it averages with the Hubbard. Packages, with seed sufficient for six hills, with full directions for cultivation, 25 cts. each; five for $1.00. Dealers supplied at the usual discount. My Seed Catalogue, with a very full description of this and other new vegetables, free to all.

JAMES J. H. GREGORY, Marblehead, Mass.



I was the first to introduce to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Phinney's Watermelon, and many other

New and Valuable Vegetables.

This season I have a new and exceedingly valuable squash, new varieties of corn, three fine melons, and other choice new vegetables for my customers.

My business is to supply, what every good farmer is anxious to get, the *very best* of vegetable seed. I grow a hundred and fifty kinds on my four seed-farms, right under my own eye, *making new vegetables a specialty*, besides importing their choicest varieties from European growers. A fine selection of flower seed, home-grown and imported, will also be found in my Catalogue, which will be sent *free* to all applicants.

As stated in my Catalogue, all my seed is sold under three warrants—1st: *That all money sent shall reach me.* 2d: *That all seed ordered shall reach the purchaser,* 3d: *That my seeds shall be fresh, and true to name.*

JAMES J. H. GREGORY, *Marblehead, Mass.*

BEAUTIFUL EVER-BLOOMING

ROSES!

POT PLANTS,
Suitable for Immediate Flowering.
SENT SAFELY BY MAIL, POST-PAID.
5 Splendid Varieties for $1; 12 do., $2.
For 10c. additional we send "MAGNIFICENT PREMIUM ROSE." Elegant Descriptive Catalogue, 10c., or presented free to every purchaser.

THE DINGEE & CONARD CO.,
ROSE-GROWERS,
West Grove, Chester Co., Pa.

OSAGE ORANGE SEED,

New. Also Apple, Pear, and a general assortment of Seeds for sale by PLANT SEED CO., St. Louis, Mo.
Established in 1845. Incorporated in 1872.

TREES, Imported and Native Nursery Stock, all kinds and all sizes, Wholesale and Retail, until June 1st. Price-list mailed free.
A. P. CHAPMAN, Nurseryman and Importer of Trees, 50 and 52 Vesey Street, New York.

WM. C. WILSON'S WHOLESALE and Retail Catalogues of Plants, Shrubs, etc., will be mailed to all applicants. WM. C. WILSON,
P. O. Box 98, Astoria, L. I. City.
City Offices: 43 W. 14th St., and 9 John St., N. Y.

JOHN S. COLLINS, Moorestown, N. J., ships good Plants. For prices, see list on page 151, April number.

THE Superior HAY SPREADER can not be surpassed for Workmanship, Durability, and Lightness of Draft.

Fleetwood Farm,

Near Frankfort, Ky.,
Thorough-bred Horses, Trotting Stock, Imported Alderneys, South Down Sheep, etc.
J. W. HUNT REYNOLDS.
(State where you saw this advertisement.)

THOROUGH-BRED AYRSHIRE BULLS for sale. Two Bulls, 2 and 3 years old. Price $90 each. Also, two Bull Calves. Price $35 each. Perfect pedigrees given. For particulars, address
J. ANDREW CASTERLINE, Dover, N. J.

COTSWOLD and SOUTH-DOWN Sheep. Fine Lambs at $15 each. Blooded Calves and Swine. Bulls and Cows. Shepherd Pups, $5. All kinds of Dogs, Maltese Cats, Madagascar Rabbits, Guinea Pigs, fancy Fowls, Toulouse, Bremen, and Hong Kong Geese, Rouen, Aylesbury, and Musk Ducks. Bronze, Blue, and White Turkeys. Peacocks, Fancy Pigeons, Eagle, Swan, Eggs, etc. Also Horses. For sale by N. GUILBERT, Evergreen Farm, Gwynedd, Pa.

JERSEY CATTLE. ESSEX PIGS. For sale by G. W. FARLEE, Cresskill, N. J.

PURE-BRED CHESTER WHITE PIGS, FANCY POULTRY, and EGGS bred and shipped by J. W. & M. IRWIN, Penningtonville, Chester Co., Pa.

Boon to Breeders.

DANA'S NEW EAR-MARKING PUNCH,
Labels, and Registers, for marking cattle, sheep, and hogs. Send six cents for samples to the patentee and exclusive manufacturer. **C. H. DANA, West Lebanon, N. H.**

BLACK BASS for stocking ponds.
BRONZE TURKEYS Large spring birds.
Address W. CLIFT, Mystic Bridge, Ct.

THE AMERICAN STANDARD OF EXCELLENCE for Exhibition Poultry. Indispensable to poultry breeders. It governs the awards at exhibitions. Sent, post-paid, for 50 cts.

WRIGHT'S NEW WORK ON POULTRY, containing 50 superb plates in colors. Published in 25 nos. Issued semi-monthly. Price 50 cts. per no., sent carefully wrapped, post-paid. *Try one no.* for a sample, and see the *finest work* of the kind ever attempted. Address H. H. STODDARD, Hartford, Ct., publisher of THE POULTRY WORLD.

THE POULTRY WORLD.

Do not subscribe for any work on poultry until you have seen this. Monthly. $1.25 per year. Specimen copy 10 cts. Address

POULTRY WORLD,
HARTFORD, CT.

EGGS FOR HATCHING—From pure and imported fowls.—Partridge, Buff Cochin, Dark Brahma, Houdans, $3 doz., 2 doz. $5. White Leghorn, Silver Gray Dorking, Light Brahma, $2 doz., 2 doz. $3, 4 doz. $5. Our Light Brahma Cock weighs 13½ lbs. Silver Spangled Hamburg, Golden Sebright Bantam, B. B. R. Game Bantam, $2 doz. Large Bronze Turkeys, $4 doz. We send fresh-laid eggs, which accounts for their hatching well. Sent to any State in the Union. Send for descriptive Catalogue.
W. S. CARPENTER & SON, Rye, Westchester Co., N. Y.

JAMES SHEPARD, BRISTOL, CT., Breeder of pure-bred S. S. Hamburgs, G. L. Sebright Bantams Houdans, Dark Brahmas, Games, and White Leghorns. Eggs and Fowls. Send stamp for new illustrated circular.

EGGS FOR HATCHING

From Light Brahmas, Buff and Partridge Cochins.
Inclose stamp for Circular. Address
S. MERRY, Ilion, N. Y.

EGGS from PURE-BRED Stock. Dark Brahmas, Light Brahmas, Houdans, and Rouen Ducks. Prices reasonable. Send stamp for circular. JOEL BRUNNER, Hosensack, Lehigh Co., Pa.

LIGHT BRAHMAS a specialty. Crosses of Williams', Comey's, and Kensington stock. Cocks from 13 to 15 lbs.; hens, 8 to 10 lbs. Eggs from selected birds, packed to go by express, $2 per dozen. JULIUS L. BROWNING, Chatham Village, Col. Co., N. Y. Box 270.

EGGS from choice White, Buff, and Partridge Cochins at $6 per dozen.
JOHN J. BERRY, Hackensack, N. J.

EGGS FOR HATCHING.—From 12 leading varieties. Inclose stamp for Circular.
N. B. PERKINS, JR., 2 Cherry St., Salem, Mass.

EGGS from imported fowls. Send stamp for terms. Also *Ohio Improved* Chester Swine.
L. B. SILVER, Salem, Ohio.

EXPERIMENTAL FARM and GARDEN, near Northport, L. I. Practical instructions to Boys, and a regular course of an English education given. Parents and Guardians, for terms, apply to
JOHN HENDERSON, Northport, L. I.

The Celebrated Bone Fertilizers,

GROUND BONE,
BONE MEAL,
BONE FLOUR.
Fresh Bone Superphosphate of Lime, or Dissolved Bone. Send for Circulars.
LISTER BROS., Newark, N. J.

HILLS "ARCHIMEDEAN,"
THE CHAMPION
LAWN MOWER OF THE WORLD.

This beautiful Mower is now so well known, throughout the United States and Europe, that it requires no recommendation (over 16,000 sold in this country alone). The only balanced Lawn Mower with AN ADJUSTABLE HANDLE.

10-inch cut, croquet mower, a beautiful little machine for small lawns, croquet grounds, cemetery lots, easily operated by a lad or miss of 10 years, price, $20; 12-inch, $22; 14-inch, standard size, $25; 28-inch, pony, $100; 32-inch, horse, for public parks and large lawns, $125. Every machine warranted to give perfect satisfaction. We challenge the world to a trial, and to produce a machine its equal. Try it, and you will buy no other.

Send for Illustrated Circulars.

MANUFACTURED BY THE
Hills "Archimedean" Lawn Mower Co.,
COLT'S ARMORY, HARTFORD, CONN.
SEMPLE, BIRGE & CO.,
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Farmers, Dairymen, and Butter-Buyers!
PACK YOUR BUTTER IN
WESTCOTT'S
RETURN BUTTER-PAIL.

Approved and recommended by the leading authorities of our country on dairying, and acknowledged by all butter-dealers to be the very best package in use.

Butter packed in this Pail brings **5 to 10 cents more** a pound in the New York City market than the same quality in any other package.

Dairymen, send for a Circular! Dealers, send for a Price-list! We are the sole manufacturers of **Westcott's Return Butter-Pail**, and also manufacture very extensively Butter-Firkins, Half-Firkin Tubs, 25-pound Butter-Pails, Well-Buckets, etc., etc. Our goods are marked with our name, and are for sale by all first-class dealers.

SILSBY BROS.,
Belmont, Alleghany Co., N. Y.
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CABLE FENCING.

Cheap, handsome, and durable. Proof against Cattle, Fire, and Rust. Hundreds of miles erected. Send for Circulars.

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14 North Fifth St., Philadelphia;
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THE EXCELSIOR LAWN MOWER,
FOR HAND OR HORSE POWER.

Manufactured by
CHADBORN & COLDWELL M'F'G CO.,
(Send for Circular.) **NEWBURGH, N. Y.**

Great Improvement in
Lawn Mowers.
The most simple and easy running Lawn Mowers made.

All who need a Lawn Mower, either for a small or large Lawn, should examine the merits of Walker's Patents, **Empire** and **Monitor.** They are simple in construction and very light, not fatiguing the operator. Send for *Circular*. Agents wanted in every town. Manufactured by

BARLOW & WALKER,
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EMPIRE,
Price
$20.00.

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Wanted----A SECRETARY

For one of the oldest and most prosperous nursery establishments. Lately incorporated. Capital Stock (paid up), $100,000. Net Gains satisfactory. Must be a practical Book-keeper, with executive ability and a nursery office experience. Must become a Stockholder of not less than $5,000. Address "INCORPORATOR," care WM. J. CARLTON, 39 Park Row, New York City.

ZERO
REFRIGERATOR,
WITH
COOLER.

Best Meat-Preserver in the world. **A. M. LESLEY,** 224 West 23d St., New York. Send for book.

A RARE CHANCE. For sale on the great fruit section, near the largest cities; mild and healthy climate:—30 acres farm planted with all the fine fruits; 10-roomed, 1½ story cottage, new barn and out-buildings; price $4,000. Also 10-acre farm, 6-roomed house, large barn, Pears, Peaches, and all the fruits; price $1,800. Also 15 acres, 4-roomed house; price $1,000. These Farms are bargains. For information, address
R. J. BYRNES, Hammonton, N. J.

FLOOD GATE AND FENCE.

The cheapest and most complete ever invented. *Perfectly automatic.* See illustration and description in this No. of the *American Agriculturist.* For illustrated Circulars address Patentee,
ROBERT S. GILCREST,
Agents wanted. De Graff, Logan Co., Ohio.

LOVEJOY'S METALLIC
WEATHER HOUSES

Indicate the changes in the weather, and are pretty mantel ornaments. The little lady appears in fair and the man in stormy weather, and they never make mistakes. Sent prepaid to any address, safely packed, upon receipt of $2 (Two), by **ALVAN L. LOVEJOY,**
Proprietor and Manufacturer,
229 Washington St., Boston.

Special price to dealers.

ELASTIC LINK FOR PLOWS.—Saves team, harness, and plow-points; neat, simple, and strong. Sample, $1.50. Agents wanted.
L. FLIEDNER, Cleveland, O.

DEPOSIT TO-DAY in the SAVINGS Bank Chartered by the United States.
SEND FOR CIRCULAR. No. 185 Bleecker St.
ASSETS OVER **$4,000,000.**

12,000,000 ACRES!
Cheap Farms!

THE CHEAPEST LAND IN MARKET for sale by the
UNION PACIFIC RAILROAD COMPANY
In the GREAT PLATTE VALLEY.

3,000,000 Acres in Central Nebraska

Now for sale in tracts of forty acres and upwards on FIVE and TEN YEARS' CREDIT AT 6 PER CENT. NO ADVANCE INTEREST REQUIRED.

MILD AND HEALTHFUL CLIMATE, FERTILE SOIL, AN ABUNDANCE OF GOOD WATER.

THE BEST MARKET IN THE WEST! The great Mining regions of Wyoming, Colorado, Utah, and Nevada being supplied by the farmers in the PLATTE VALLEY.

Soldiers Entitled to a Homestead of **160** Acres.

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FREE HOMES FOR ALL! MILLIONS OF ACRES of choice Government Lands open for entry under the HOMESTEAD LAW, near this GREAT RAILROAD, with good markets, and all the conveniences of an old settled country.

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Orange and Vine Culture in Southern California.

The Santa Anita Wine and Fruit-Growers' Association of Los Angeles Co., owning 8,000 acres of choicest land, partly planted in Oranges, Lemons, Almonds, etc., with a large bearing Vineyard and abundance of never-failing water, is now prepared to receive subscriptions to its stock, which consists of 300 shares at $1,000. Each share, in addition to an equal interest in the general property, entitles the holder to immediate possession of a five-acre homestead lot in the settlement of Glenwood, which has been laid off on the property. For winter homes for Invalids and others who may wish to escape the rigors of this climate it is unequaled in the world. As an investment, it will yield large returns, and no opportunity equal to it has ever been offered for industrious men, whose means may be limited, to acquire beautiful and productive homes. The promoters of the enterprise are the leading men in their portion of the State. Only $100 required at time of subscription. For all information, prospectus, etc., address
WM. M. TILESTON, No. 40 Broadway, N. Y.

THE Superior HAY SPREADER saved me Two Hundred Dollars on my hay last season.

ON THIRTY DAYS TRIAL!

The Triumph of Genius in overcoming all obstacles to the perfect success of a hand Sewing-Machine!

The movement of two parts makes the Stitch and feeds the Cloth, both of which are large and strong, thus doing away with all complications.

Increased to FOUR TIMES the size and weight of the $12 style.

Its Development.

In the Spring of 1871, when the principles so peculiar to this machine were first presented to the consideration of an eminent patent lawyer of New York, he seemed forcibly impressed with the novelty and great simplicity of design, and assured us of its great originality, remarking that he "had in his possession over 1,500 transcripts of Sewing-Machine patents; that there was nothing, so far as he knew, that possessed these ideas of form of construction which, if carried into operation would for the first time establish the practical value of a low-priced Sewing-Machine, entirely divested of *all complications*, which have hitherto been the sole cause of the complete failure of all cheap Sewing-Machines."

Since then, and previous to the construction of this, we have, step by step advanced in our line of progress, securing several patents, manufacturing and selling many thousands of machines, *without infringing upon any patent*, aiming to produce the best possible machine for the money, varying the price, as improvements were added, from $7.50 to $12 each at retail, and so far as we know, with scarcely an exception, the $10 and $12 styles are giving *universal satisfaction*, as many hundreds of letters in our possession bear witness.

Yet many have suggested that if the machine was increased in size and power it would very much add to its value and popularity, and make it all that heart or hand could desire. These kind suggestions, coupled with past success, stimulated us to still greater efforts, and far more valuable improvements. We have, therefore, increased the weight from 1¾ lbs. to 7 lbs., which enlarges its capacity to that of the most expensive first-class family Sewing-Machines, without impairing its portability.

By this increase of size we have added cam and eccentric movements, a balance-wheel, also an oscillating needle-clamp, by which the length of stitch can, with the greatest ease, be changed to the finest shade of variation without touching the needle.

Many other improvements have been added, which give value, strength, and beauty to the machine, all of which are harmoniously united by the best mechanical skill, and highly adorned by artistic beauty.

THE

BECKWITH

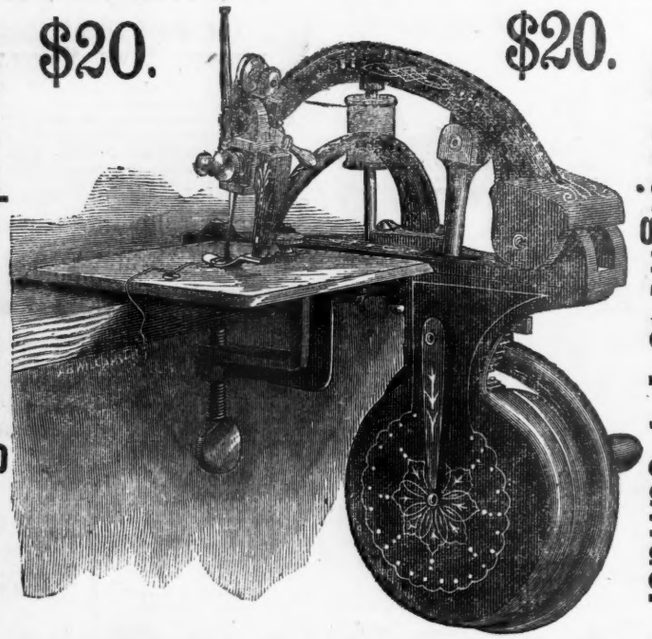
PORTABLE

Family Sewing-Machine!

$20. $20.

Enlarged and Improved.

Its Weight is 7 Pounds.



The Cloth Plate is the size used by a $100 Machine, is of polished, plated Steel, Attachments of proportionate size and quality, while the entire Machine has corresponding finish throughout. Braider, Embroiderer, Hemmer, Gatherer, four sizes of Needles, &c., are given with every Machine.

It Makes the Stitch, and Feeds the Cloth, with only Two Pieces.

While all other Machines have many complications and a multiplicity of small, delicate pieces, especially in the four-motion feed, which have heretofore been the special cause of the uniform failure in all low-priced Machines, this Machine, by the inventive genius of its name-sake, Mr. Beckwith, does away entirely with *all* complications, and performs the entire work of making the stitch, and also of feeding the cloth, with the movement of only TWO PIECES — the Needle-arm and Looper, both of which are large, simple, and strong, and are propelled by cam and eccentric movements, which enforce mathematical precision, besides giving the greatest possible durability, while the Machine, by its slight friction and fine finish, runs light and smooth as an evenly-balanced wheel.

Mode and Ease of Operation.

The Machine is readily fastened to the leaf of a table by the use of a thumb-screw, and is so constructed that the crank and balance-wheel are below the leaf of the table, which permits the arm of the operator to remain in a natural and easy position, and requires only a slight movement of the hand from the wrist to run the Machine to any desired speed. And as the Machine feeds from the table towards the operator into the lap, large garments can be spread upon the table and fed with one hand, or even with one finger, while the left arm reposes on the table. *Hence, by its peculiar construction, every obstacle is actually removed to a most easy and successful operation of a hand Machine.* It makes the strongest possible seam, the only stitch that stands where the severest tests are required, as for instance, on garments that need washing, goods that are sewed on the bias, and all elastic goods—while all woolen undergarments, parasols and umbrellas, that are subjected to the severest tests, are now exclusively made by this ELASTIC LOOP-STITCH, which, by a most simple device, is accomplished by a single tension, a single thread, direct from a single spool. It also fastens its own seam securely, yet, when desired, it can be unlocked at pleasure.

The Strength, Capacity, and Durability

of this Machine is EQUAL TO ANY, REGARDLESS OF COST; and is alike adapted to all qualities of goods and all sizes of garments. By its peculiar construction, it runs with such ease that the strength of a lady's little finger readily makes upwards of 500 stitches per minute, which, with its SEMI SELF-GUIDING FEED, enables even the most delicate person to manage it with a degree of pleasure never before realized, and kindly relieves woman from the necessity of again toiling with the burdensome DEATH TREAD OF THE TREADLE, "which is more powerful and efficient in the production of disease of various kinds in that sex than almost all other causes combined."—*Mass. State Board of Health.* 1872. *Page* 196.

It will not Disappoint You.

We want it *distinctly* understood that no machine, at *any* cost, can so easily enable every one to do all of their family sewing as this; that none is more carefully or thoroughly made, or constructed on more durable principles, and none so sure of always being in perfect order.

What We Believe and Know.

We believe we have, by years of study and experience, learned what the people need to be fully equipped with a *Reliable Family* Sewing-Machine. We also believe that ours, being divested of all complications, and now having been made amply large in its essential portions, will fully meet the demands of the people. We furthermore *know* that the Machine is all we claim it to be; that it is as well made as honor, money, and mechanical skill can produce, and offered at less than one-third the usual price of other first-class Machines, with many advantages over all.

Conditions of Sale.

Now, all we ask is, the generous co-operation of an appreciative public. To this end, we propose to sell the Machine ON 30 DAYS' TRIAL, and will furnish it complete to any purchaser, or forward it to any part of the country by Express (the purchaser paying charges), on receipt of $20, and give with it a beautiful *Portable Case*, with handle to carry it at ease by hand. This case we will carefully box, which, all complete, will weigh not far from 12 pounds, 8 by 9 inches square. If after having the Machine 30 days it does not give perfect satisfaction, we will refund the $20 on return of the Machine, less the Express charges. If any doubt our honor or responsibility, we will gladly give the best of references. Complete directions go with every Machine, which are ample for the most inexperienced. Agents wanted in every city and town in the country. Terms POSITIVELY CASH TO ALL, with liberal discount.

As heretofore, our $12 Machine is sold on THIRTY DAYS' TRIAL.

BECKWITH SEWING-MACHINE COMPANY,

Temporary Office, until May 1st, 36 WEST BROADWAY.

893 BROADWAY, New York (near 17th Street).

RIDING COAT.

SEA LIONS.

VLACKE-VARK.

P. T. BARNUM'S GREAT TRAVELING WORLD'S FAIR for the Campaign of 1873.

P. T. BARNUM TO THE PUBLIC.

LADIES, GENTLEMEN, FAMILIES, CHILDREN, FRIENDS:

My career for forty years as a public Manager of Amusements blended with Instruction is well known. You have all heard of my three New York Museums; my appearance before kings, queens, and royal courts, with Gen. Tom Thumb; my great triumphal tour with Jenny Lind, the Swedish Nightingale; and my immense Traveling Exhibitions. Everybody concedes that I give ten times the money's worth, and always delight my patrons. I now come before you with the **LAST GRAND CROWNING TRIUMPH OF MY MANAGERIAL LIFE.**

Notwithstanding the burning of my last museum, in December (which, however, did not destroy any of my great traveling chariots, vans, cages, or horses, nor duplicates of most of my living wild animals, which were then on exhibition in New Orleans), I have been enabled, through the aid of cable dispatches, electricity, and steam, and the expenditure of nearly a million of dollars, to place upon the road by far the largest and most interesting Combination of **MUSEUM, MENAGERIE,** and **HIPPODROME** ever known. Indeed, it may fairly be called a great **TRAVELING WORLD'S FAIR.**

No description will convey an adequate idea of its vastness, its beauty, and its marvelous collection of wonders. After our *Grand Opening* at the buildings of the American Institute, Saturday, March 29th, where the corner-stone of our guaranteed success was laid, which amounted in reality to a grand ovation—in fact, so desirous were the citizens of the Metropolis to exhibit their appreciation, that hundreds had to be denied admission at each performance for want of room, even in that immense building.

It will travel entirely by railroad, and be exhibited this season in nearly every large town in New England, Canada, and the States east of the Mississippi River, and north of the Ohio. It requires more than one hundred cars, besides *fifty of my own*, made expressly for this purpose, and five or six locomotives, to transport it. My daily expenses exceed $5,000. We can only stop in large towns, and leave it to those residing elsewhere to reach us by cheap excursion trains, which they can easily get up.

Although I have consolidated more than twenty shows in one, containing nearly one hundred gorgeously magnificent gold and enameled cages, dens, and vans, requiring the services of nearly ONE THOUSAND MEN and OVER FIVE HUNDRED HORSES, the price of admission to the entire combination of exhibitions is only the same as is charged to a common show—viz., 50 cents; children, half-price.

FREE ADMISSION to all who buy Mr. Barnum's Life, written by himself, brought down to February 1873, 850 pages, illustrated, bound and gilt. Price reduced from $3.50 to $1.50.

HORACE GREELEY said, "P. T. Barnum's book was worth a hundred dollar greenback to many a young man beginning in life."

My great Hippodrome-Tent comfortably seats 18,000 persons at one time, while my numerous other tents cover several acres of ground.

The Museum Department contains 100,000 Curiosities, including Prof. Faber's wonderful **TALKING MACHINE,** costing me $20,000 for its use six months. Also a **NATIONAL PORTRAIT GALLERY** of 100 life-size Oil Paintings, including all the Presidents of the United States, our Statesmen and Military Heroes, as well as foreign Potentates and Celebrities, and the entire Collection of the celebrated John Rogers' Groups of Historical and Classic Statuary. Also an almost endless variety of Curiosities, including numberless Automaton Musicians and Mechanicians, and Moving Scenes, Transformation Landscapes, Sailing-Ships, Running Water-Mills, Railroad Trains, etc., made in Paris and Geneva, more beautiful and marvelous than can be imagined, and all kept in motion by a Steam-Engine. Here also are Giants, Dwarfs, Fiji Cannibals, Modoc and Digger Indians, Circassian Girls, the No-Armed Boy, etc.

Among the Rare Living Animals are **MONSTER SEA LIONS,** transported in great water-tanks; the largest **RHINOCEROS** ever captured alive, and 500 Wild Beasts and Rare Birds. Elephants, Elands, Gnus, Lions, Tigers, Polar Bears, Ostriches, and every description of Wild Animal hitherto exhibited, besides many never before seen on this Continent.

In the Hippodrome department are **THREE DISTINCT RINGS,** wherein three sets of rival performances are taking place at the same time, in full view of all the audience. Here will be seen performing elephants, horse-riding goats, educated horses, ponies, trick mules and bears, and three distinct equestrian companies (with six clowns), including by far the best male and female bare-back riders in the world, with numerous athletes and gymnasts who have no equal. Everything is perfectly chaste and unobjectionable.

I regard this with pride as the culminating triumph of my amusement career, and I hazard nothing in saying that **THE LIKE WILL NOT BE SEEN AGAIN IN THIS GENERATION.**

THE GREAT STREET PROCESSION, three miles long, takes place every morning at half-past eight o'clock. It is worth going one hundred miles to see. It consists of trains of elephants, camels, dromedaries, zebras, and elk in harness; nearly one hundred gold, enameled, and cerulean chariots, vans, dens, and cages; Arabian horses, trick ponies, three bands of music, and a most marvellous display of gymnastic, automatic, and musical performances in the public streets.

☞ THREE FULL EXHIBITIONS will be given each day at 10, 1, and 7 o'clock. Clergymen of all denominations, and their wives, admitted free. Parties from the country are earnestly advised to see the Grand Procession, and attend the first morning exhibitions, while everything is fresh and seen to the best advantage, thus avoiding the immense crowds of afternoon and evening.

The public's obedient servant,

P. T. Barnum

438 FIFTH AVENUE, March 15th, 1873.

THE PHILADELPHIA LAWN-MOWERS.

	Power Required.	Width of Cut.	Weight.
No. 00,	A Lady,	10 inches,	28 lbs.
" 1, Jr.,	A Youth,	14 "	37 "
" 1,	One Man,	15 "	63 "
" 2, Jr.	One Man,	16 "	42 "
" 2,	One or Two Men	20 "	75 "
" 2½,	A light Horse (Draft Pole)	30 "	275 "
" 2½,	" " (Driver's Seat and Shafts),	30 "	315 "

We recommend our 14-inch and 16-inch Machines as being only about one half the weight considered necessary by other manufacturers, and on this account they are much easier worked, are stronger and more durable, and do their work in the most perfect manner.

Try "The Philadelphia" and you will buy no other.

Sold wholesale and retail by

GRAHAM, EMLEN & PASSMORE,

Patentees and Manufacturers, 631 Market St., Philadelphia.

W. A. COVERT & CO., Produce Commission Merchants, No. 68 Pearl Street, New York. "Quick sales and prompt returns." ☞ Send for our weekly Prices-current and Marking Plate.

Broken National Bank-Notes

bought at Four (4) per Cent Premium.

DE HAVEN & BRO.,

No. 40 S. 3d St., Philadelphia, Pa.

Reputation and Money

CAN BE MADE BY SELLING THE

AMERICAN SUBMERGED PUMPS.

County and town rights of this Pump for sale by

MUDGE & WOODS,

No. 55 Chambers St., New York.

See March and April Nos. of this Paper.

BUILDING FELT.

This water-proof material, resembling fine leather, is for outside work (*no tar substances used*) and inside, instead of plaster. Felt carpetings, etc. Send two stamps for circular and samples.

C. J. FAY, Camden, N. J.

FIRST Premiums awarded by Amer. Inst., 1870.

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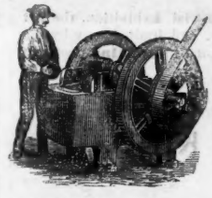
Illustrated Price-List sent free on application.

MAGIC LANTERNS.

Catalogue, priced and illustrated, sent free.

T. H. McALLISTER, Optician, 49 Nassau-st., N. Y.



BLAKE'S STONE and ORE BREAKER,

For reducing to fragments all kinds of hard and brittle substances, such as

ROCKS, ORES, MINERALS, AND DRUGS.

Extensively used for making **Concrete** for **MacAdam Roads,** Ballast for Railroads reduction of Auriferous Quartz, pulverizing Emery Stone, preparing Iron, Copper, and Zinc Ores, etc., etc. *Twenty* prize medals awarded in Europe and America. The patent for this machine has been *fully sustained* in the Courts, after repeated and thoroughly contested suits. Those who *make, sell, or use* machines infringing on this patent do so at their own risk.

Address THE BLAKE CRUSHER CO., New Haven, Ct.

NEW YORK AGENCY, 137 Elm Street, Where a machine may be seen in operation.

NUTRINA,

Made from choice roasted Wheat. It will cure Dyspepsia and Constipation, and regulate Digestion. It will keep fresh and sweet any length of time, and cook in less time than ordinary cracked wheat. Sold by Grocers. Sample package sent free on receipt of 25 cents.

Manufactured only by the

NUTRIO MANUFACTURING CO.,

1520 S. 9th St., Philadelphia.

The Family Cherry-Stoner.

The only practical Cherry-Stoner made.

It leaves the fruit plump and round, with its juices preserved. Sold in all large markets. Send $1.00 for sample.

D. H. GOODELL, Sole Manufacturer, 55 Chambers St., New York. Works at Antrim, N. H.

P. S.—Also sole manufacturer of Lightning and Turn-Table Apple-Pagers, Lightning Peach-Parers, and Climax Apple-Corer and Slicer.

IMPROVED FOOT LATHES,

With Slide Rest and Fittings. Just the thing for the Artisan or Amateur Turner.

ALSO HAND PLANERS.

Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Cuba, Europe, etc. Send for descriptive Catalogue.

Address N. H. BALDWIN, Laconia, N. H.

AGENTS, LOOK!—$12 a day made selling Scissors Sharpener and other wares. Sample 25 cts. Catalogue free. T. J. HASTINGS & CO., Worcester, Mass.

PET STOCK PIGEON & POULTRY BULLETIN

A finely illustrated monthly now in its fourth year. The only paper in America devoted exclusively to Poultry, Pigeons, Birds, and Pet Animals. Only $1.00 a year. Address THE ASSOCIATED FANCIERS, P. O. Box 230, New York.

Horses, Cattle, Sheep, & Swine.

Horse Book, $2.50; Cattle, Sheep, etc., $2.50.

Two new and valuable books, by Dr. Geo. H. Dadd. Just published, and should be owned by every man who keeps a horse or a cow. Sent by mail on receipt of price. We want 1,000 Agents to canvass the entire country with these books. Liberal terms to Agents. Address with stamp for reply.

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Self-Propelling Chairs For Cripples and Invalids

For In and Out-Door Use.

Can be EASILY propelled by any one having the use of hands.

State your case, and send stamp for illustrated circulars and prices. cular of different styles and prices.

Please mention this paper.

S. A. SMITH, 90 William St., N. Y. City.

FARMERS, BE SURE AND EXAMINE the superior **Hay Spreader;** it is the cheapest, most complete, and most durable Hay Tedder ever put into the field. Read a few of the comments received. Send for circular and description to

HIGGANUM M'F'G CO., Higganum, Ct.

NO DRUNKARD

SHALL ENTER INTO THE KINGDOM OF HEAVEN,

PERPETUAL CRYSTAL PALACE

AND

Industrial Exhibition Company

OF NEW YORK.

Subscription to the Stock

will be received at the following places in New York City

UNION TRUST CO.	73 Broadway.
HOWES & MACY	30 Wall street.
FIFTH NATIONAL BANK	Third avenue and Twenty-sixth street.
BULL'S HEAD BANK	Third avenue and Twenty-fifth street.
HARLEM BANK	Third avenue and One Hundred and Twenty-fifth street, and of
A. S DIVEN	Erie Railroad Office.
SAMUEL SLOAN	President Delaware and Lackawanna Railroad, corner William street and Exchange place.
RICHARD SCHELL	31 Broad street.
ERASTUS BROOKS	Publisher New York Express.
H. B. CROSBY	16 Nassau street.
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PAUL N. SPOFFORD	29 Broadway, and at the temporary office of the Company, 925 Broadway.

All payments must be made by check payable to the order of the *Union Trust Company*, 73 Broadway. The moneys arising from the sale of the stock hereby sold are paid into the Union Trust Company, and can not be paid out by said Company except upon vouchers showing that the money has been actually and honestly expended in the erection of the Industrial Exhibition Building, or in acquiring title to land.

The land of the Company is exempt from taxes, bounded as follows: 98th to 102d street, and 3d to 4th avenue. Comprising 355 24-25 city lots, or about 23 Acres.

Shares $100 each.

Payments to be made as follows:

Five per cent at time of subscribing, and the balance in installments not exceeding ten per cent at any one installment.

There can be no safer investment than this. It is a home investment. It is the ownership of land on New York Island, and the erection of a permanent building on the same.

In accordance with the charter, and by a resolution of the Board of Directors of the Industrial Exhibition Company, passed July 24th, 1872, the following **memberships** have been created, and are offered for sale at the above-named places and by authorized Agents throughout the United States.

The proper holder of any of these is entitled to **free admission** to the Industrial Exhibition, the Art Gallery of Statuary and Paintings, and the Garden of Plants, during the time it is open, and limited only by the duration of the membership. These memberships do not entitle the holder to admissions to **special** places of amusement, except as conducted by the Exhibition Company.

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Class 1st. Price $10. 30 admissions.

Entitling the purchaser to thirty admissions to the Exhibition. Not transferable. Price, $10.

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Entitling the purchaser to ninety admissions to the Exhibition. Not transferable. Price, $20.

Class 3d. Price $40. 360 admissions.

Entitling the purchaser to three hundred and sixty admissions. Not transferable. Price, $40.

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Entitling the purchaser to admission at any time during life; the building being open to the public. Not transferable. Price, $100.

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Entitling the purchaser and his immediate family *(in esse* at the time of such purchase) or any of them, during the lifetime of any of them, to admission to the Exhibition, when open to the public. Not transferable. Price, $300.

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Entitling the holder and owner to admission to the Exhibition at any time when the building is open to the public. Transferable by sale, gift, or devise, but only to be used by the actual owner. The holders of these memberships are to be regarded as honorary members of the Institution, with such additional privileges as may from time to time be granted them by the Board of Directors.

Payment to be made whenever called on by *check* payable to the order of the Union Trust Company.

A suitable Badge will be adopted, for Life, Family, and Hereditary members.

Memberships will not be sold after the Building is open to the public.

Each purchaser of a membership will be given an engraving of the Building.

Banks, Bankers, and *Individuals* are *wanted* to act as Agents, throughout the United States.

Applications for space will be filed in the order in which they are received.

For further information, please address

INDUSTRIAL EXHIBITION COMPANY,

No. 925 Broadway, New York City.

"Our Preference is the Buckeye."

American Agriculturist, June, 1872.

BUY THE BEST!

MOWER & SELF-RAKING REAPER

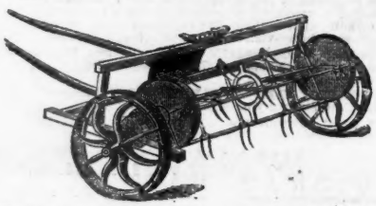
MANUFACTURED BY ADRIANCE, PLATT & CO

STYLES, SIZES & PRICES TO SUIT ALL FARMERS.

Descriptive Circulars Forwarded by Mail.

THE

AMERICAN HAY TEDDER.



Enables the most important Agricultural product of America to be cut, cured, and stored in the barn in one day. Improves the quality and increases the value of the hay crop. Prevents all risk of damage from storms and sudden showers. Is simple, durable, and of light draft. Was awarded the New England Agricultural Society's only first prize, at the Great Field Trial, at Amherst, Mass., as being superior to all others, and the best and only perfect machine for tedding or turning hay.

MADE ONLY BY

AMES PLOW COMPANY,

53 Beekman St., New York,

and Quincy Hall, Boston.

SEND FOR DESCRIPTIVE CIRCULAR.

MEDAL MACHINES.

New York State Agricultural Works,

WHEELER, MELICK & CO.,

PROPRIETORS, PATENTEES, AND MANUFACTURERS OF

RAILWAY CHAIN AND LEVER HORSE POWERS,

Combined THRASHERS and Winnowers, Overshot Thrashers, Clover Hullers, Feed Cutters, Saw-Mills, Horse Rakes, Horse Pitchforks, Shingle-Machines, etc., ALBANY, N. Y.

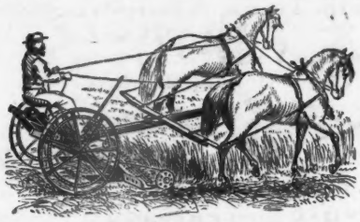
Chapman's Railway Pitching Apparatus,

more profitable than any simple Horse-Fork for unloading hay and grain into barns and sheds, and for stacking. *Saves Farmer's labor, time, and money. Sent on trial. Agents wanted.* Send for illustrated Circular, with suggestions in building barns. Address CHAPMAN & WEEKS,

Utica, N. Y., or Syracuse, N. Y.

WE WOULD NOT SELL OUR SUPERIOR HAY SPREADER for five times its cost if we could not obtain another.

Direct Draft Eureka Mower.



PROCLAMATION.

We proclaim for the information of hay-producers that the DIRECT DRAFT EUREKA MOWER CAN NOT be EQUALED by any side-cut Mower on the following important points:

1st. Time of cutting. 2d. Power expended. 3d. Quality of work, which is the condition of the stubble, and the way the grass is left for curing. 4th. Time of curing the grass—no tedder to be used. 5th. Quality of hay. 6th. Economy of cost in gathering a hay crop. 7th. Durability of Machine.

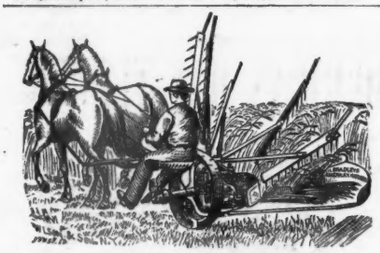
It is highly important to all hay-producers who are unacquainted with the Eureka that this fact—THE VERY GREAT SUPERIORITY OF DIRECT DRAFT OVER SIDE-CUT—should be settled in their minds by a thorough and exhaustive comparative test trial before competent judges.

Therefore, We, The Wilber's Eureka Mower and Reaper Manufacturing Company, will PRESENT any Manufacturer $1,000 who will meet us in a trial during the harvest of 1873, and succeed in equaling the Eureka Mower on the above-named points by using a Side-Cut Mower.

The unsuccessful party to pay all expenses.

ISAAC W. WHITE, President.

Poughkeepsie, N. Y., March 10th, 1873.



BRADLEY'S

AMERICAN HARVESTER.

We warrant it to cut any grain that grows, and in any condition.

It will do better work, is more durable, and is in every respect superior to our former manufacture of the celebrated

Johnston "Sweepstakes" Reaper.

Don't buy any other until you have seen it.
For particulars, address

BRADLEY MAN'F'G CO., Syracuse, N. Y.

For sale by Machine Agents and Dealers.

USE THE "SIMONDS" KNIVES & SECTIONS FOR MOWERS & REAPERS

THE BEST ARE THE CHEAPEST

CARHART'S

Patent Two-Horse

PULVERIZING CULTIVATOR

Is superior to the best Wheel Cultivators.

It can be adjusted to any depth required without the use of wheels.

The draft is reduced nearly one half.

The price is only Twenty-two Dollars.

It pulverizes the ground thoroughly, and can be used for more purposes than any other implement on the farm.

BRADLEY MAN'F'G CO., Syracuse, N. Y.

WARREN HOE.

20,000 sold last year. Upwards of 50,000 sold for 1873. Show this to your merchant; ask him to let you try one. You will not part with it for twice its cost. Made only by PETERS BROTHERS' MANUFACTURING CO., Marshall, Mich.

AFTER ONE DAY'S USE of the SUPERIOR HAY SPREADER no farmer will ever part with it.

HARROW YOUR WHEAT

WITH THE

Thomas Smoothing Harrow

AND

BROADCAST CULTIVATOR,

And Insure an Increase of from five to ten Bushels per Acre.

The testimony of hundreds of best farmers in proof is positive and conclusive.

Samuel V. Miller, Milo, N. Y., says: "I went all over my wheat in the spring, before sowing plaster and grass seed, and have no doubt it increased my crop *one fourth*, my neighbors say *one half*, besides fitting the ground for clover seed in the most perfect manner."

Byram Moulton, Alexander, N. Y., says: "I used the Thomas Harrow on my wheat last spring, and raised 1,600 bushels on 50 acres, while my neighbors' wheat, with equal promise without harrowing, yielded only 15 bus. per acre."

Send for Catalogue.

J. J. THOMAS & CO., Geneva, N. Y.

Ask your **PLUMBER** for the

People's Pumps,

and send for a Circular.

The **best** Force-Pumps in the market, and for **sale everywhere.** Prices from $10 to $30. For **Stock-yards, Farms, House,** and **Greenhouses.** The **Cut-Door Pumps** are **Non-Freezing,** and are adjustable to wells from **6** to **100** feet deep.

W. S. BLUNT,
Sole agent of the American Pump Co., 26 Beekman St., New York.

CONROY, O'CONNOR & CO.,
San Francisco, Cal.,
Agents for States and Territories west of Rocky Mountains.

For sale by **SCOTT, DUNHAM & CO.,**
Salt Lake City, Utah.

J. C. TILTON

PITTSBURGH

WOMAN'S 100,000 SOLD FRIEND

AND STEAM PA WASHER

Will Cleanse your Clothes without Rubbing. Every one Sold is fully Warranted. It will do the Washing of the Family while you are Eating Breakfast and doing up Dishes.

READ THIS CIRCULAR.

I respectfully ask all to read this circular carefully, and candidly consider what I propose as a matter of business. Before making known my terms, permit me to state that the matter of washing clothes is one of no small consideration; it is something which concerns every family and every individual. It is but *recent* since **Hand Washing** was in common use. Latterly, however, the inventive genius of the country has been directed to the invention of various devices by which much of the labor, drudgery, loss of time, and wear of material might be obviated. Ponderous as well as intricate WASHING MACHINES have been constructed—many of which are decided improvements over the old method of washing—and these machines have been very salable. People will continue to have Washing Machines; but let me ask you if the STEAM WASHER can be constructed for a few dollars (much less than any ordinary Washing Machine), and enable all to WASH by STEAM without labor, loss of time, without wearing of clothing, etc., is it not reasonable to suppose that it will supersede, in a great measure, all the Washing Machines now in common use? The sale of the WASHER is unparalleled, and *must* be so. There is nothing like it in use. It is new, and every family needs it, and will buy it. I wish to secure a few good men to sell rights for me, and in order to secure as many as I need *immediately*, I offer extra inducements. My price for territory is $9 per 1,000 inhabitants; but if you will buy a single county, and agree to sell rights for me, I will allow you to deduct 66⅔ per cent as your commission; consequently your county would cost you but $75 instead of $225, should it contain but 25,000 inhabitants, more or less in the same proportion. And to those buying rights I will sell Washers at nearly cost; and to those not buying rights, I will furnish Washers at $60 per dozen; and bear in mind, I will sell to no one, except a single dozen, until he first buys the right to a county. Any tinner can make the Washer as well as they are made here, and save the cost of transportation. Remember that by purchasing the right of a single county, you shall have the privilege of selling any county or State for me; and upon application I will forward the deed to you by express for any territory which you have sold for me, provided that said territory is not already disposed of when I receive your order. I make all the deeds, so there can be no mistakes. The amount you will have to pay me is simply $3 per 1,000 inhabitants, in any county or State. I shall make these *very liberal* offers to a limited number, and for a short time only; after which I shall sell at my regular price—$9 per 1,000.

Many of my patrons have requested me to suggest the best method of selling the **Steam Washer,** in order to make the most money in the shortest time. In reply, I would say there are many methods which might be suggested, all of which seem to work well, but the most prominent of which I will suggest: In the first place, send for a sample and carefully test it. You will learn by a single trial how to wash with it successfully. All you have to do now is to exhibit it to others. I will suggest that you make an engagement to *wash* at a certain place, at an appointed hour; manage to have as many present as possible. You will be astonished at the intense excitement it will produce after the water and steam have rushed through the tubes and foamed over the clothing, rushing back through the clothing to the lower bottom to be suddenly returned again in the same manner—say for thirty minutes—you take out the clothing, rinse, and wring out, and find the clothing perfectly clean. You will find all perfectly delighted with it.

You can take orders from nine in ten present, to be filled afterwards, at $10 each. A single trial in this manner will satisfy you that the **Steam Washer** is a success and will sell. You should lose no time in ordering a deed for your county, to be sent by express, C. O. D., if not convenient to advance the money. You should continue to take orders, and by the time your deed would come to hand you might have a gross sold. You should arrange with a tinner to make the WASHERS—the price will vary according to style and finish. I have known some agents to sell as many as twenty Washers in a day. After you have introduced it more or less in your county, you can take another county, and rest assured that whenever you get a single Washer into a neighborhood it will sell many more. Consequently, after you have sold a few hundred in a county, you can sell the right of your county for much more than at the start. You can calculate what your gains will be by buying a single county, but this is not a tenth part what you ought to make, for while you are traveling you will meet with many men who want to make money to whom you can sell rights. There is no business you can engage in which offers such splendid inducements, besides it is a safe business, no loss, and pleasant because it renders perfect satisfaction. I can not see how I can propose better terms. Should I allow my patrons to make their own terms, I scarcely believe they could make better terms for themselves, and make more money.

On the receipt of **Five Dollars** I will ship you a complete Washer, as a sample, together with a Certificate of Agency, with full instructions how to conduct the business. And upon the receipt of the Washer you may have time to test it, and if you find it not as represented I will refund your money. The Washers retail at $10. After I send you a sample, I will hold your county a reasonable time for you to decide whether you wish to purchase or not. I will furnish blank deeds, and will do all I can to enable you to succeed in the business. Let me hear from you soon, or your choice of territory may be taken by some one else.

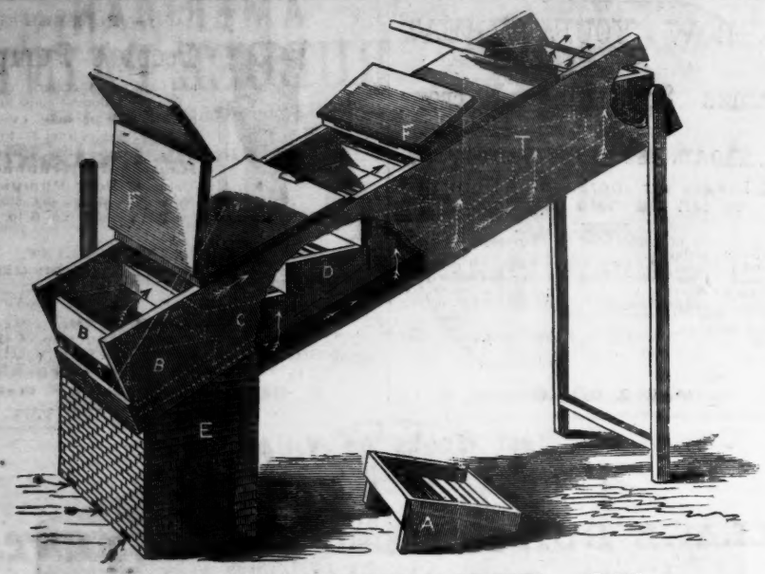
ADDRESS

No. 10½ Sixth Street.

J. C. TILTON,
PITTSBURGH, PA.

BUILDING PAPER!

For Sheathing, Roofing, Deafening, Carpet Lining, and as a substitute for Plastering. Send for Samples and Circulars, to B. E. HALE & Co., 55 & 58 Park Place, N. Y., or ROCK RIVER PAPER CO., Chicago.



FRUIT PREPARED ON

THE AMERICAN FRUIT - DRIER

Has taken the FIRST PREMIUMS wherever Exhibited.

The apparatus has been thoroughly tested two years, has given entire satisfaction, and its use is rapidly extending wherever it is known.

WITH THE AMERICAN FRUIT-DRIER

Surplus fruit of every kind, and also that which from over-ripeness or inferior size or quality is unfit for marketing in the unprepared state, can all be converted into a marketable commodity, which from its excellence will command the highest price. Such fruit as is prepared by this means is now selling in this city at an average of fifty per cent more than ordinary dried fruit.

NO MORE CANS NEEDED.

In preserving fruit, the end to be gained is to retain the sweetness and flavor permanently. The canning process was a great advance on the old-fashioned "pound-for-pound" way of making preserves, but in the necessary steaming process there is loss of valuable constituents of the fruit, much of which is avoided by the new method. More than this, experiment proves that by this latter process the fruit is *increased in sweetness* by the change of its starch into glucose or fruit-sugar. In other words, while passing through the Drier it is *ripened more fully*. Fruit so prepared requires one quarter to one third less sugar to prepare it for the table than is needed for canned fruit. Other manifest advantages over the canning system are: **Less Trouble in Operating; Certainty of Keeping; No Loss from Broken Bottles; Great Saving of Room in Storing.**

THE AMERICAN FRUIT-DRIER is so simple in plan and in working, that any carpenter can make it, and any ordinary laborer operate it. Its capacity can be adapted to small or large operations. The ordinary family size, No. 1, will in favorable weather dry apples as fast as two persons can prepare the fruit. The cost is so moderate, that every farmer can profitably buy it to save the surplus product of his orchard or fruit-yard.

Having formed a company under the name and style of the AMERICAN DRIER COMPANY, we are prepared to furnish DRIERS to agents and others in the United States for the season of 1873, in three different sizes, viz.:

No. 1, 24 inches wide and 12 feet long, $25.00.
No. 2, 30 inches wide and 14 feet long, $35.00.
No. 3, 36 inches wide and 16 feet long, $45.00.

The above are the factory prices, all complete except stove—delivered at the freight or express office, Loudon, Pa. Any common nine or ten-plate or any other kind of wood or coal stove can be used. Printed directions for setting up and operating sent with each machine.

No. 1 is a convenient size for general use, and will dry all the surplus fruit on any ordinary farm, drying as fast as two hands can hand-pare and cut the fruit.

No. 3 will give employment to four hands.

☞ For fruit-growers in the fruit districts we make a series of DRIERS to do any given amount of work, ranging in price from $100 to $500.

Portable DRIERS with sheet-iron stoves all ready to operate, and exhibition models for agents, furnished to order; prices according to size, style, and finish.

☞ Furnaces and steam-heaters for large DRIERS furnished at the lowest rates.

Samples of fruits and vegetables dried in the AMERICAN DRIER sent by mail or express, prepaid, on receipt of 25 cents.

We also invite the attention of manufacturers of various articles which require drying, to the combination of principles embraced in the AMERICAN DRIER patent claims. By special mechanical arrangements it may be adapted—on a large scale—to various purposes, such as drying grain, hops, herbs, chemicals, paper, straw-boards, lumber, and for drying and curing beef, pork, fish, etc., etc.

Agents wanted to introduce and sell the DRIERS, and the rights to make and use them.

For further information, show-bills, circulars, and special terms to agents, send name and post-office address, inclosing stamp, to the

AMERICAN DRIER CO.,
LOUDON, FRANKLIN CO., PA.

A model of the Drier may be seen at the office of *American Agriculturist*, 245 Broadway, N. Y.

Patent Thumb-Piece Sheep-Shears.

Patent Pruning & Sheep-Toe Shears.

MANUFACTURED BY

HENRY SEYMOUR & CO.,
29 & 31 Rose St., New York.

First Premium awarded by Am. Institute Fair and twelve different State Fairs. Highest recommendation from Hon. H. S. Randall, Pres't Wool-Growers' Association, and author "Practical Shepherd." Recommendations from many practical shearers.

"The Sheep-Shears work splendidly, and I would not ask for any better. So says Mr. Jepson, who shears our sheep, and he has sheared thousands."
(Signed) L. A. CHASE, *Am. Agriculturist.*

$2.25	$2.50	$2.50	$2.75
4½	5	5½	6-in. blade.

"I have tested your Pruning and Sheep-toe Shears, and they are excellent. I used them to dock the tails of my lambs this season, and found them the handiest instrument for that purpose I ever used."
(Signed) HENRY S. RANDALL.

PRUNING SHEARS.

Every pair warranted. Free by mail on receipt of price, **Pruning or Sheep-toe Shears, $3 per pair.** Sold everywhere. State where you saw this.

AGRICULTURAL STEELS

TEMPER

WARRANTED.

A SPECIALTY.

Metropolitan
Agricultural
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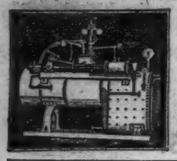

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